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ABSTRACT

This guide is part of the Delaware Department of Education's ongoing efforts to provide assistance and support to local school districts in their development of a standards-based curriculum. The guide details the essential skills and knowledge that elementary students must attain at each grade level in English language arts, mathematics, science, and social studies; specifies the eligible content for the Delaware Student Testing Program at grades 3 and 5; gives district curriculum committees material to help guide the development and revision of curricula; serves as a reference for teachers in planning lessons and developing units; and provides an overview of all performance indicators at each grade level in order to facilitate teachers' planning of disciplinary and interdisciplinary units of study. The performance indicators are presented by discipline. The last section presents a multidiscipline menu of performance indicators by grade. A glossary of terms is included. (SM)

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ED 464 894

Delaware Teachers' Desk Reference to Standards and Performance Indicators for Curriculum Planning and Unit Development, K-5

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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SP 040 675

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January 15, 1998

Dear Elementary Educator,

The State of Delaware's Department of Education is proud to provide you with this teachers' reference for Standards and Performance Indicators. The material presented here reflects the hard work and commitment of numerous educators who gave their time and applied their expertise to developing a guide to teaching the Standards that all of us will benefit from, especially our students.

It's an exciting and challenging time for everyone in the field of education, a time in which we must take a serious step forward to advance excellence in education. In Delaware, one of the most bold and comprehensive steps toward achieving our goal of improving student learning is the implementation of a rigorous system of standards-based instruction that when put into practice will:

- *improve student achievement* by defining what students should know and be able to do in terms that are specific and translatable to daily classroom practice.
- *provide a common reference point* to ensure that all members of the education system, teachers, administrators, parents, and business people, can effectively focus their resources.
- *foster creativity and local decision-making* with each district or school responsible for choosing how to cluster instructional objectives in the form of performance indicators (either within or across disciplines) and develop teaching units that will ultimately provide students with an instructional path to the Standards.

In the context of this publication the term "pathfinder" refers to those who use the performance indicators to create instruction that directly addresses Delaware's Standards. The Content Standards represent our destination, where we want to take our students. Performance Indicators for each grade represent the steps along the way. How the journey is made, the paths taken, and the tools used to achieve these standards are up to each district's teachers and curriculum coordinators, the true "pathfinders." This desk reference is an essential pathfinder's tool.

A pragmatic look at the use of standards in action tells us we're on the right track. In 1996, Delaware implemented an assessment based on a set of challenging writing standards. Results showed that student's average scores increased in all four grades tested. This is but one clear demonstration of how rigorous standards, when combined with appropriate curriculum and assessment and increased professional development, can improve learning.

We hope you will use this desk reference often as you and your colleagues plan curriculum and develop units of instruction. We expect new and exciting approaches to teaching and learning will be taking place in schools across our state. We would welcome knowing about your successes and challenges as we all work to move Delaware's standards-based reform from vision to reality.

Sincerely,

Dr. Iris T. Metts
Secretary of Education

Dr. Stephen J. Adamowski
Associate Secretary of Education

TEACHERS' DESK REFERENCE

Introduction

This Teachers' Desk Reference to Standards and Performance Indicators for Curriculum Planning and Unit Development is part of the Department of Education's ongoing efforts to provide assistance and support to local school districts in their development of a standards-based curriculum.

About this Practical Reference Tool

Inside this binder you'll find useful information that:

- details the essential skills and knowledge that elementary school students must attain at each grade level in English Language Arts, Mathematics, Science, and Social Studies;
- specifies the eligible content for the Delaware Student Testing Program (DSTP) at grades 3 and 5;
- gives district curriculum committees material to help guide the development and revision of curricula;
- serves as a reference for teachers in planning lessons and developing units;
- provides an overview of all the Performance Indicators at each grade level in order to facilitate teachers' planning of disciplinary and interdisciplinary units of study.

The Performance Indicators (statements of what students should know and be able to do by the completion of each grade level) are presented by discipline indicated by the tabs: starting with English Language Arts and proceeding with Mathematics, Science, and Social Studies.

The last tabbed section will be of value to grade-level teachers of all subjects. This Unit Development Resource section presents a multidiscipline "menu" of performance indicators by grade. As teachers develop units, it will be easier to make decisions regarding scope and sequence by using this "at-a-glance" resource tool.

The Relationship of Performance Indicators to Assessment

A quality education is based on an orderly and balanced approach to learning – a continuous process in which prior knowledge and increasingly complex skills build to form greater understandings.

To this end, specific performance indicators are provided for each content area at each grade level to show the continuum learning should take over time. For purposes of assessment, "end of grade cluster" expectations will serve as the basis for our Delaware Student Testing Program (DSTP).

The grade-by-grade indicators may be helpful in another way: they may be used by schools and districts to create assessments that will help with promotion/retention decisions.

Our focus on grade-to-grade development helps teachers, students, and parents clearly understand what is needed in terms of performance at various intervals of a child's school experience for students to reach the standards. It can be anticipated that some students will need more time, greater intensity of instruction, and different methods to achieve these goals and that student progress toward the standards will also serve as the basis for each school's "extra time" decisions.

How the Performance Indicators are Presented for Use

In each of the disciplines one or more Content Standards, which provide the basis for curriculum and assessment, are presented on the top page followed by the end-of-cluster expectations that will be measured by the Delaware Student Testing Program (DSTP). The performance indicators related to the standards are on the bottom page. These are written at a level of specificity that allows for their use as instructional objectives in units of instruction. They represent the content of the curriculum that, in the best estimate of the educators who developed them, should be taught to enable students to understand the content and concepts that will be assessed.

The columns have been arranged by consecutive grade levels in a way that permits you to see how the indicators for students in your grade fit into the overall scheme. By being able to see what has been and will be taught in grades that precede or follow your own, you'll have information available to guide you in planning units of instruction that support a developmental learning process.

You will notice that columns between grades K and 1, 1 and 2, and 4 and 5 are separated by dotted lines, while a solid line separates the columns for grades 3 and 4. The use of dotted and solid lines suggests the option to move certain performance indicators among grades within a cluster but not between clusters as district and school curriculum decisions are made.

Just as the indicators for each content area are interrelated and designed to be taught simultaneously, so too they may be related to indicators in other disciplines. That's why you'll find the last tabbed section in this binder helpful; it presents grade-by-grade performance indicators for all four disciplines with a format that helps facilitate an integrated curriculum planning and unit development process.

Performance indicators can be clustered together within content areas as instructional objectives for discipline-based units or clustered across content areas as instructional objectives for interdisciplinary or integrated units.

We hope this information encourages creativity, innovation, and coherence as we pursue the goal of ensuring that all children attain high standards.

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The Department of Education wishes to thank the following individuals who authored the K-5 performance indicators in each content area. Their many hours of dedicated service have made this Desk Reference to the Standards and Performance Indicators possible.

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ENGLISH LANGUAGE ARTS STANDARD ONE

Students will use written and oral English appropriate for various purposes and audiences.

END OF CLUSTER EXPECTATIONS

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Written Communication

Writing is a flexible and recursive process that encompasses identifying purposes and audiences, prewriting, drafting, revising, editing, and publishing. The use of a variety of technologies will facilitate this process.

Writers at all grade levels will produce texts that exhibit the following **language conventions**, all of which are consistent with the genre and purpose of the writing:

- **sentence formation**
- **conventions**

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Language Conventions

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.101 use a left-to-right, top-to-bottom progression.	**1.101** use complete sentences.	**2.101** recognize words that are misspelled.	**3.101** recognize words that are misspelled and refer to resources for correction.	**4.101** recognize words that are misspelled and refer to resources for correction.	**5.101** recognize words that are misspelled and refer to resources for correction.
K.102 write their own first and last name.	**1.102** write all upper- and lower-case letters.	**2.102** use correct spelling for familiar words.	**3.102** write using an increasing percentage of conventional spelling.	**4.102** write using an increasing percentage of conventional spelling.	**5.102** write using an increasing percentage of conventional spelling.
K.103 write using invented/temporary spelling, demonstrating some letter/sound associations.	**1.103** write using invented/temporary spelling, demonstrating letter/sound associations for most sounds in words.	**2.103** write using an increasing percentage of conventional spellings.	**3.103** identify variations from Standard English grammatical structures and refer to resources for correction.	**4.103** identify variations from Standard English grammatical structures and refer to resources for correction.	**5.103** employ strategies to spell difficult words correctly.
K.104 use conventional spelling for familiar words.	**1.104** use correct spelling for simple words with regular spelling patterns.	**2.104** identify variations from Standard English grammatical structures (e.g., hurted for hurt) and punctuation.	**3.104** use complete sentences, varied in length and structure.	**4.104** use complete sentences, varied in length and structure.	**5.104** identify variations from Standard English grammatical structures and refer to resources for correction.
K.105 demonstrate dexterity in the use of a variety of writing tools (e.g., crayons, pencils, pens).	**1.105** capitalize the first word in a sentence and the pronoun "I".	**2.105** capitalize the first word in a sentence and the pronoun "I".	**3.105** capitalize beginning words of sentences, proper nouns, "I," and titles.	**4.105** capitalize beginning words of sentences, proper nouns, "I," and titles.	**5.105** use complete sentences, varied in length and structure.
	1.106 use period and question marks correctly.	**2.106** use periods, question marks, and exclamation marks correctly.	**3.106** use correct subject-verb agreement and noun-pronoun agreement.	**4.106** use correct subject-verb agreement and noun-pronoun agreement.	**5.106** capitalize beginning words of sentences, proper nouns, "I," and titles.
	1.107 use appropriate spacing between words and sentences.	**2.107** experiment with commas and quotation marks.	**3.107** begin to use commas, apostrophes, and quotation marks.	**4.107** use commas, apostrophes, and quotation marks.	**5.107** use correct subject-verb agreement and noun-pronoun agreement.
			3.108 begin to use compound and complex sentences.	**4.108** use compound and complex sentences.	**5.108** use commas, apostrophes, and quotation marks.
					5.109 use compound and complex sentences.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD ONE

Students will use written and oral English appropriate for various purposes and audiences.

END OF CLUSTER EXPECTATIONS

▼▼▼▼▼▼▼▼

By the completion of **grade 3**, students will be able to write **expressive (author-oriented) texts***, both personal and literary, that

- reveal self-discovery and reflection.
- demonstrate experimentation with techniques which could include dialogue.
- demonstrate experimentation with appropriate modes which could include narration and description.

By the completion of **grade 5**, students will be able to write **expressive (author-oriented) texts***, both personal and literary, that

- reveal self-discovery and reflection.
- demonstrate experimentation with techniques which could include dialogue.
- demonstrate experimentation with appropriate modes which could include narration and description.
- ***demonstrate experimentation with rhetorical forms.***

***Expressive (author-oriented) texts** – Written or oral communication intended to allow the speaker or writer to reveal his or her own thoughts, beliefs, feelings, etc. Literary expression is included in this purpose as it is often through literary or creative writing that a person finds the vehicle for such self-expression. The text is author-oriented in that the speaker/writer is concerned primarily with expressing his or her own thoughts, with less focus on the needs of or the effect on an audience.

Writers will produce texts that exhibit the following **textual features**, all of which are consistent with expressive writing: **development, organization, style, and word choice.**

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Expressive Writing

Kindergarten

Students will be able to:

K.106 use drawings with labels (enhanced by students' oral language) to reveal self and share experiences.

K.107 use oral language to tell the story depicted in drawings.

K.108 use details in their drawing (and in the accompanying oral language) to develop the text.

Grade One

Students will be able to:

1.108 use written language more than drawings to communicate to a reader.

1.109 use a logical order of presentation (beginning, middle, and end).

1.110 use detail in writing (perhaps supported by drawings) to express feelings and actions.

1.111 experiment with appropriate modes (e.g., narration, description).

Grade Two

Students will be able to:

2.108 use written text to communicate to a reader.

2.109 use a logical order of presentation (beginning, middle, and end), connected by basic transitions (e.g., first, next, last).

2.110 include well-chosen details.

2.111 use carefully chosen words to express ideas and enliven the topic.

2.112 experiment with setting, main character, problem and solution.

2.113 maintain a focus on a single topic.

2.114 use lively engaged writing, reflective of their voice.

2.115 experiment with the use of dialogue.

2.116 experiment with appropriate modes (e.g., narration, description).

Grade Three

Students will be able to:

3.109 provide an engaging beginning that establishes the situation.

3.110 use a consistent organizing structure (e.g., problem/solution, circular, sequence of events).

3.111 use well-chosen details to clarify ideas for a reader.

3.112 include setting, characters, problem and solution.

3.113 use appropriate transitions to move through events.

3.114 conclude in a logical, effective way.

3.115 use lively engaged writing, reflective of their voice.

3.116 experiment with dialogue to bring characters to life.

3.117 experiment with appropriate modes (e.g., narration, description).

Grade Four

Students will be able to:

4.109 include an engaging beginning.

4.110 use a consistent organizing structure (e.g., problem/solution, circular, sequence events).

4.111 use well-chosen details to clarify ideas for a reader.

4.112 include character, setting, problem, and solution.

4.113 use appropriate transitions to move through events.

4.114 conclude the piece in a logical, effective way.

4.115 use lively engaged writing, reflective of their voice.

4.116 experiment with varying points of view.

4.117 experiment with dialogue to bring characters to life and advance text.

4.118 experiment with appropriate modes (e.g., narration, description).

4.119 experiment with appropriate use of various types of texts (e.g., personal narrative, memoir, personal vignette, personal essay, imaginative writing).

Grade Five

Students will be able to:

5.110 provide an engaging beginning.

5.111 use a consistent organizing structure (e.g., problem/solution, circular, sequence events).

5.112 use well-chosen details to clarify ideas for a reader.

5.113 use appropriate transitions to move through events.

5.114 conclude in a logical, effective way.

5.115 use lively engaged writing, reflective of their voice.

5.116 use varying points of view.

5.117 use dialogue to bring characters to life and advance text.

5.118 experiment with appropriate modes (e.g., narration, description).

5.119 experiment with appropriate use of various types of texts (e.g., personal narrative, memoir, personal vignette, personal essay, imaginative writing).

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD ONE

Students will use written and oral English appropriate for various purposes and audiences.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to write **informative (subject-oriented) texts*** both personal and literary, that

- **begin to address the needs of the audience.**
- **exhibit appropriate modes which could include description, narration, classification, simple process analysis, simple definition.**
- **conform to the appropriate formats which could include letters, summaries, messages, and reports.**

By the completion of **grade 5**, students will be able to write **informative (subject-oriented) texts*** both personal and literary, that

- **address the needs of the audience.**
- **exhibit appropriate modes which could include description, narration, classification, simple process analysis, simple definition.**
- **conform to the appropriate formats which could include letters, summaries, messages, and reports.**
- ***contain information from primary and secondary sources, avoiding plagiarism.***

***Informative (subject-oriented) texts** – Written or oral communication intended primarily to convey information. The text is subject-oriented in that the focus is on clear and complete communication of ideas rather than on changing the audience's opinion or expressing the speaker/writer's personal feelings or beliefs.

Writers will produce texts that exhibit the following **textual features**, all of which are consistent with informative writing: **development, organization, style, and word choice.**

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Informative Writing

Kindergarten

Students will be able to:

K.109 experiment with forms (e.g., labels, signs, lists, messages).

K.110 use oral language to explain drawings and illustrations to a reader.

K.111 copy environmental print and other messages.

Grade One

Students will be able to:

1.112 use written language more than drawings to communicate to a reader.

1.113 use detail (perhaps supported by drawings) to convey information.

1.114 experiment with the use of a logical order of presentation (introduction, body, conclusion).

1.115 experiment with various forms (e.g., reports, letters, directions, messages).

1.116 report information clearly.

1.117 experiment with primary and secondary sources.

Grade Two

Students will be able to:

2.117 use written text to share information with a reader.

2.118 maintain a focus on a single topic.

2.119 include well-chosen, accurate details.

2.120 use a logical order of presentation (introduction, body, and conclusion), connected by basic transitions (e.g., first, next, last).

2.121 use illustrations (e.g., pictures, graphs) when applicable to support information.

2.122 use their own words (as much as possible).

2.123 experiment with various modes (e.g., description, classification, simple process-how to, definition).

2.124 experiment with the use of primary and secondary sources.

2.125 cite sources, when appropriate.

Grade Three

Students will be able to:

3.118 use written text to share information with a reader.

3.119 maintain a focus on a single topic.

3.120 include well-chosen, accurate details.

3.121 elaborate on the topic (e.g., facts, examples).

3.122 use a logical order of presentation (introduction, body, and conclusion), connected by basic transitions (e.g., first, next, last).

3.123 use illustrations (e.g., pictures, graphs) when applicable to support information.

3.124 use their own words (as much as possible).

3.125 use various modes (e.g., narration, description, classification, simple process-how to, definition).

3.126 experiment with the use of primary and secondary sources and cite sources, when appropriate.

Grade Four

Students will be able to:

4.120 use written text to share information with a reader.

4.121 maintain a focus on a single topic.

4.122 include well-chosen, accurate, and relevant details.

4.123 elaborate on the topic (e.g., facts, examples).

4.124 use a logical order of presentation (introduction, body, and conclusion), connected by basic transitions (e.g., first, next, last).

4.125 use illustrations (e.g., pictures, graphs) when applicable to support information.

4.126 experiment with the paraphrasing of primary and secondary sources.

4.127 use various modes (e.g., narration, description, classification, simple process-how to, definition).

4.128 cite sources, when appropriate.

Grade Five

Students will be able to:

5.120 use written text to share information with a reader.

5.121 maintain a focus on a single topic.

5.122 include well-chosen, accurate, and relevant details.

5.123 elaborate on the topic (e.g., facts, examples).

5.124 use a logical order of presentation (introduction, body, and conclusion).

5.125 use appropriate transitions for coherence.

5.126 use illustrations (e.g., pictures, graphs, maps, diagrams, charts) when applicable to support information.

5.127 paraphrase primary and secondary sources, avoiding plagiarism.

5.128 use various modes (e.g., narration, description, classification, simple process, simple definition).

5.129 cite sources, when appropriate.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD ONE

Students will use written and oral English appropriate for various purposes and audiences.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to write **argumentative and persuasive (audience-oriented) texts*** both personal and literary, that

- begin to consider the needs of the audience.
- communicate a clear-cut position on an issue.
- support the position with relevant information, which could include personal opinions and examples.
- exhibit evidence of reasoning.

By the completion of **grade 5**, students will be able to write **expressive (author-oriented) texts*** both personal and literary, that

- ***address*** the needs of the audience.
- communicate a clear-cut position on an issue.
- support the position with relevant information, which could include personal ***and expert*** opinions and examples.
- exhibit evidence of reasoning.

***Argumentative and persuasive (audience-oriented) texts** – Written or oral communication intended to sway the audience's thinking or action. The text is audience-oriented in that the speaker/writer takes into consideration how best to sway the intended audience (i.e., What information will the audience need to understand the point? What objections to the point might the audience raise — and how can these objections be addressed? What language and/or organizational plan will be most effective with the audience?).

Writers will produce texts that exhibit the following **textual features**, all of which are consistent with persuasive writing: **development, organization, style, and word choice**.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Persuasive Writing

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.112 use drawing with labels (enhanced by students' oral language) to reveal a position to a reader.	**1.118** use written language more than drawings to communicate with a reader.	**2.126** use written text to state and support a position for a reader.	**3.127** use written text to state and support a position for a reader.	**4.129** use written text to state and support a position for a reader.	**5.130** use written text to state and support a position for a reader.
K.113 use oral language to state an opinion depicted in drawings.	**1.119** use detail in writing (perhaps supported by drawings) to state a position.	**2.127** maintain a focus on a single position.	**3.128** maintain a focus on a single position.	**4.130** maintain a focus on a single position.	**5.131** maintain a focus on a single position.
K.114 use details in their drawings (and in the accompanying oral language) to develop their position.	**1.120** begin to support a position with personal opinion.	**2.128** begin to support the position with details which could include personal opinions.	**3.129** support the position with details which could include personal opinions and examples.	**4.131** support the position with details which could include personal opinions and examples.	**5.132** support the position with details which could include personal opinions and examples.
		2.129 use a logical order of presentation (e.g., state position, provide support, close with concluding statement).	**3.130** use a logical order of presentation (e.g., state position, provide support, close with concluding statement).	**4.132** use a logical order of presentation (e.g., state position, provide support, close with concluding statement).	**5.133** use a logical order of presentation (using inductive or deductive reasoning strategies).
		2.130 use convincing language.	**3.131** use convincing language.	**4.133** use convincing language.	**5.134** use convincing language.
		2.131 experiment with various forms (e.g., advertisements, letters).	**3.132** exhibit evidence of clear thinking and reasoning appropriate for the reader.	**4.134** exhibit evidence of clear thinking and reasoning appropriate for the reader.	**5.135** exhibit evidence of clear thinking and reasoning appropriate for the reader.
			3.133 use various forms (e.g., letters, editorials).	**4.135** use various forms (e.g., letters, editorials).	**5.136** select appropriate form (e.g., letters, editorials) for audience.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD ONE

Students will use written and oral English appropriate for various purposes and audiences.

END OF CLUSTER EXPECTATIONS

Speakers demonstrate oral language proficiency in formal and informal speech situations such as conversations, interviews, collaborative group work, oral presentations, public speaking, argumentations, and debate.

By the completion of **grade 3**, students will be able to:

- **formulate** a message including all essential information.
- **organize** a message appropriately for the specific speech situation.
- **deliver** a message,
  - — attempting to control volume, tone, speed, and enunciation appropriately for the situational context;
  - — creating an impression of being secure and comfortable;
  - — incorporating audio/visual aids when appropriate.
- **respond** to feedback, adjusting volume and speed.

By the completion of **grade 5**, students will be able to:

- **formulate** a message including all essential information.
- **organize** a message appropriately for the specific speech situation.
- **deliver** a message,
  - — ***beginning*** to control volume, tone, speed, and enunciation appropriately for the situational context;
  - — ***using facial expressions to reinforce the message;***
  - — ***maintaining focus;***
  - — creating the impression of being secure and comfortable, and in command of the situation;
  - — incorporating audio/visual aids when appropriate.
- **respond** to feedback, adjusting volume and speed, ***and answering questions.***

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Oral Communication

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.115 use oral language for different purposes (inform, persuade, and express self). **K.116** begin to follow rules for conversation (e.g., taking turns, staying on topic). **K.117** share and discuss work using complete sentences. **K.118** share an idea on a topic. **K.119** speak in front of a group. **K.120** use appropriate volume. **K.121** use props to support an oral message.	**1.121** use oral language for different purposes (inform, persuade, and express self). **1.122** follow rules for conversation (e.g., taking turns, staying on topic). **1.123** share and discuss work using complete sentences. **1.124** begin to share related ideas on a topic in a logical order. **1.125** speak in front of a group. **1.126** use appropriate volume and speed. **1.127** use props to support an oral message. **1.128** respond to feedback and answer questions.	**2.132** use oral language for different purposes (inform, persuade, and express self). **2.133** share related ideas on a topic in a logical order. **2.134** begin to include necessary details to support oral message. **2.135** express ideas orally in complete sentences. **2.136** use appropriate volume and speed. **2.137** respond to feedback and answer questions. **2.138** use audio/visual aids when appropriate.	**3.134** use oral language for different purposes (inform, persuade, and express self). **3.135** share related ideas on a topic in a sequential order (including beginning, middle, and end) apppropriate for the audience. **3.136** include necessary details. **3.137** paraphrase information shared orally by others. **3.138** speak clearly and audibly using expression/appropriate tone. **3.139** use audio/visual aids when appropriate. **3.140** respond to feedback and answer questions.	**4.136** use oral language for different purposes (inform, persuade, and express self). **4.137** organize messages appropriate for the audience and the purpose. **4.138** stay on topic. **4.139** maintain eye contact with audience. **4.140** summarize main points before or after presentation. **4.141** use audio/visual aids when appropriate.	**5.137** use oral language for different purposes (inform, persuade, and express self). **5.138** formulate and organize messages appropriate for the audience and the purpose. **5.139** stay on topic. **5.140** summarize main points before or after presentation. **5.141** maintain eye contact with audience. **5.142** use audio/visual aids when appropriate. **5.143** respond to feedback and answer questions.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- select and apply efficient, effective decoding and other word recognition strategies to comprehend printed texts.

By the completion of **grade 5**, using appropriate texts, students will be able to:

- select and apply efficient, effective decoding and other word recognition strategies to comprehend printed texts.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Decoding and Word Recognition Strategies

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.122 identify upper- and lower-case letters. **K.123** understand concepts of print (e.g., letter, word, sentence, left-to-right directionality, top-down, return sweep of print). **K.124** understand concept of rhyme. **K.125** understand concept of beginning sound. **K.126** blend onsets and rhymes. **K.127** know the sounds associated with almost all consonants. **K.128** identify 5-10 familiar words, including their names.	**1.129** develop an effective, efficient word recognition strategy to apply to unknown words. **1.130** use context clues. **1.131** use word parts (e.g., chunking). **1.132** apply phonetic principles (e.g., consonants, consonant clusters, blends, diagraphs, vowels, word families). **1.133** identify syllables of spoken words. **1.134** use analogy. **1.135** build sight vocabulary. **1.136** read appropriate first-grade texts fluently (orally).	**2.139** use a combination of effective, efficient word recognition strategies to comprehend printed texts (e.g., context clues, word parts, phonics, analogy). **2.140** continue to build sight vocabulary. **2.141** read appropriate second-grade texts fluently (orally).	**3.141** use a combination of effective, efficient word recognition strategies to comprehend printed text (e.g., context clues, word parts, phonics, analogy). **3.142** read appropriate third-grade texts fluently (orally).	**4.142** use a combination of effective, efficient word recognition strategies to comprehend printed text (e.g., context clues, word parts, phonics, analogy). **4.143** read appropriate fourth-grade texts fluently (orally).	**5.144** use a combination of effective, efficient word recognition strategies to comprehend printed text (e.g., context clues, word parts, phonics, analogy). **5.145** read appropriate fifth-grade texts fluently (orally).

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- develop an increasingly extensive vocabulary and actively seek the meaning of unknown words as an important facet of comprehending texts and messages by:
  - — using context clues to determine the meanings of words;
  - — using reference works, technology, and human resources to learn the meaning of unknown words (e.g., dictionaries, computer software).

By the completion of **grade 5**, using appropriate texts, students will be able to:

- develop an increasingly extensive vocabulary and actively seek the meaning of unknown words as an important facet of comprehending texts and messages by:
  - — using context clues to determine the meanings of words;
  - — using reference works, technology, and human resources to learn the meaning of unknown words (e.g., dictionaries, ***thesaurus,*** computer software).

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

(Skills are cumulative, utilizing grade-appropriate materials.)

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PERFORMANCE INDICATORS
Vocabulary

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.129 begin to use picture clues to determine meaning of unknown words. K.130 categorize pictures to develop concepts. K.131 recognize environmental print (e.g., stop sign, cereal boxes). K.132 use human resources to learn the meaning of unknown words.	1.137 begin to use context clues and picture clues. 1.138 categorize pictures and words to develop concepts. 1.139 alphabetize words by first letter. 1.140 use picture dictionaries and human resources to learn the meaning of unknown words. 1.141 begin to use synonyms and antonyms.	2.142 use context and picture clues. 2.143 categorize words to develop concepts. 2.144 alphabetize words by more than first letter. 2.145 use human resources to learn the meaning of unknown words. 2.146 begin to use dictionaries and glossaries. 2.147 begin to use synonyms, antonyms, and homonyms. 2.148 begin to determine specific meaning of words with multiple definitions (homographs).	3.143 use context and picture clues. 3.144 categorize words and phrases to develop concepts. 3.145 use dictionaries and glossaries. 3.146 begin to use thesauruses. 3.147 understand synonyms, antonyms, and homonyms. 3.148 begin to determine specific meaning of words with multiple definitions (homographs).	4.144 use context clues to determine meaning, e.g., – read and reread sentences – use similes or metaphors – look for definitions in sentences (appositive phrases). 4.145 use reference works (e.g., dictionaries, thesauruses, glossaries, computers, human resources). 4.146 understand synonyms, antonyms, and homonyms. 4.147 use context clues to determine specific meaning of words with multiple definitions (homographs).	5.146 use context clues to determine meaning, e.g., – read and reread sentences – use similes or metaphors – look for definitions in sentences (appositive phrases). 5.147 use reference works (e.g., dictionaries, thesauruses, glossaries, computers, human resources). 5.148 understand synonyms, antonyms, and homonyms. 5.149 use context clues to determine specific meaning of words with multiple definitions (homographs).

(Skills are cumulative, utilizing grade appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- self-monitor comprehension while listening, reading, and viewing by:
  - — generating a purpose for reading, listening, or viewing;
  - — assimilating information with prior knowledge to revise predictions and understandings, and to make inferences;
  - — taking appropriate actions (e.g., rereading to make sense, adjusting rate of reading, seeking the meaning of unknown vocabulary) to enhance the understanding of oral and written text.

By the completion of **grade 5**, using appropriate texts, students will be able to:

- self-monitor comprehension while listening, reading, and viewing by:
  - — generating a purpose for reading, listening, or viewing;
  - — assimilating information with prior knowledge to revise predictions and understandings, and to make inferences;
  - — taking appropriate actions (e.g., rereading to make sense, adjusting rate of reading, seeking the meaning of unknown vocabulary) to enhance the understanding of oral and written text.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Self-monitor Comprehension

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.133 ask and/or answer questions after listening, viewing, or reading. K.134 make and revise predictions, with teacher assistance.	1.142 make predictions. 1.143 revise predictions, with teacher assistance. 1.144 begin to reread and/or self-correct when necessary.	2.149 set purpose(s) for reading, listening, or viewing, with teacher assistance. 2.150 make and revise predictions. 2.151 use appropriate strategies to assist comprehension (e.g., reread, adjust rate of reading, seek meaning of unknown vocabulary).	3.149 set purpose(s) for reading, listening, or viewing, with teacher assistance. 3.150 make and revise predictions. 3.151 use appropriate strategies to assist comprehension (e.g., reread, adjust rate of reading, seek meaning of unknown vocabulary).	4.148 set purpose(s) for reading, listening, or viewing, with teacher assistance. 4.149 make and revise predictions. 4.150 self-monitor comprehension (e.g., reread, adjust rate of reading, seek meaning of unknown vocabulary, use think-aloud strategies).	5.150 set purpose(s) for reading, listening or viewing, with teacher assistance. 5.151 make and revise predictions. 5.152 self-monitor comprehension (e.g., reread, adjust rate of reading, seek meaning of unknown vocabulary, use think-aloud strategies).

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- demonstrate an overall understanding of oral and printed texts by:
  - — making and revising predictions as needed;
  - — identifying the story elements (e.g., characters, setting, plot);
  - — recognizing figurative language and literary devices (e.g., simile, metaphor);
  - — retelling a story or restating an informative text through speaking and/or writing;
  - — organizing the important points of the text by completing summaries, outlines, and/or graphic organizers;
  - — identifying the author's purpose;
  - — comparing information between and within texts;
  - — discriminating between fact and opinion;
  - — drawing conclusions;
  - — questioning the validity of the information;
  - — relating the content of the text to real-life situations.

By the completion of **grade 5**, using appropriate texts, students will be able to:

- demonstrate an overall understanding of oral and printed texts by:
  - — making and revising predictions as needed;
  - — identifying the story elements (e.g., characters, setting, plot);
  - — ***identifying and interpreting figurative language and literary devices (e.g., simile, metaphor, etc.);***
  - — retelling a story or restating an informative text through speaking and/or writing;
  - — organizing the important points of the text by completing summaries, outlines, and/or graphic organizers;
  - — identifying the author's purpose;
  - — comparing information between and within texts;
  - — discriminating between fact and opinion;
  - — drawing conclusions;
  - — ***accepting or rejecting the validity of the information and giving supporting evidence;***
  - — relating the content of the text to real-life situations.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

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PERFORMANCE INDICATORS

Demonstrate an Overall Understanding of Oral and Printed Texts

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.135 make and revise predictions, with teacher assistance. K.136 identify title, author, and illustrator, with teacher assistance. K.137 identify character and setting (place), with teacher assistance. K.138 retell familiar stories using beginning, middle, and end. K.139 sequence pictures related to stories. K.140 follow simple oral directions. K.141 relate content of stories to personal experience.	1.145 make predictions. 1.146 revise predictions, with teacher assistance. 1.147 identify title, author, and illustrator. 1.148 identify character, setting (place), and problem/solution. 1.149 begin to recognize main idea. 1.150 retell (orally) stories using beginning, middle, and end. 1.151 sequence pictures or simple text related to stories. 1.152 complete story maps. 1.153 compare information within and between texts, with teacher assistance.	2.152 make and revise predictions as needed. 2.153 identify title, author, and illustrator. 2.154 identify character, setting (place), main idea, and plot. 2.155 begin to recognize figurative language and literary devices (e.g., similes, metaphors, point of view). 2.156 retell stories in oral and written form. 2.157 restate informative texts including important details. 2.158 organize events using summaries, outlines, or other graphic organizers. 2.159 identify author's purpose, with teacher assistance. 2.160 compare information within and between texts, with teacher assistance.	3.152 make and revise predictions as needed. 3.153 identify character, setting (time and place), main idea, and plot. 3.154 identify and begin to interpret figurative language and literary devices (e.g., similes, metaphors, personification, point of view). 3.155 retell stories in oral and written form. 3.156 restate informative texts including important details. 3.157 organize the important points of text using summaries, outlines, or other graphic organizers. 3.158 identify author's purpose. 3.159 compare information within and between texts.	4.151 make, revise, and support predictions. 4.152 identify character, setting (time and place), theme, and plot. 4.153 begin to identify problem/solution. 4.154 identify and begin to interpret figurative language and literary devices, (e.g., similes, metaphors, personification, point of view). 4.155 retell stories including important details, in oral and written form. 4.156 restate informative texts including important details. 4.157 organize the important points of text using summaries, outlines, or other graphic organizers. 4.158 identify author's purpose. 4.159 compare information within and between texts.	5.153 make, revise, and support predictions. 5.154 identify character, setting (time and place), theme, plot, problem/solution, antagonist, and protagonist. 5.155 identify and interpret figurative language and literary devices (e.g., similes, metaphors, personification, point of view). 5.156 retell stories including important details, in oral and written form. 5.157 restate informative texts including important details. 5.158 organize the important points of text using summaries, outlines, or other graphic organizers. 5.159 identify author's purpose. 5.160 compare information within and between texts.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- demonstrate an overall understanding of oral and printed texts by:
  - — making and revising predictions as needed;
  - — identifying the story elements (e.g., characters, setting, plot);
  - — recognizing figurative language and literary devices (e.g., simile, metaphor);
  - — retelling a story or restating an informative text through speaking and/or writing;
  - — organizing the important points of the text by completing summaries, outlines, and/or graphic organizers;
  - — identifying the author's purpose;
  - — comparing information between and within texts;
  - — discriminating between fact and opinion;
  - — drawing conclusions;
  - — questioning the validity of the information;
  - — relating the content of the text to real-life situations.

By the completion of **grade 5**, using appropriate texts, students will be able to:

- demonstrate an overall understanding of oral and printed texts by:
  - — making and revising predictions as needed;
  - — identifying the story elements (e.g., characters, setting, plot);
  - — ***identifying and interpreting figurative language and literary devices (e.g., simile, metaphor, etc.);***
  - — retelling a story or restating an informative text through speaking and/or writing;
  - — organizing the important points of the text by completing summaries, outlines, and/or graphic organizers;
  - — identifying the author's purpose;
  - — comparing information between and within texts;
  - — discriminating between fact and opinion;
  - — drawing conclusions;
  - — ***accepting or rejecting the validity of the information and giving supporting evidence;***
  - — relating the content of the text to real-life situations.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

PERFORMANCE INDICATORS

Demonstrate an Overall Understanding of Oral and Printed Texts

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
	1.154 draw conclusions. 1.155 reread to make sense of text. 1.156 follow simple oral and written directions. 1.157 relate content of text to real-life situations.	2.161 discriminate between fact and opinion, with teacher assistance. 2.162 draw conclusions and determine cause/effect. 2.163 follow oral and written directions. 2.164 relate content of text to real-life situations.	3.160 discriminate between fact and opinion. 3.161 draw conclusions and determine cause/effect. 3.162 question the validity of information. 3.163 follow oral and written directions. 3.164 relate content of text to real-life situations.	4.160 discriminate between fact and opinion. 4.161 draw conclusions and determine cause/effect. 4.162 accept or reject the validity of information, giving supporting evidence. 4.163 follow oral and written directions. 4.164 relate content of text to real-life situations.	5.161 discriminate between fact and opinion. 5.162 draw conclusions and determine cause/effect. 5.163 accept or reject the validity of information, giving supporting evidence. 5.164 follow oral and written directions. 5.165 relate content of text to real-life situations.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts, students will be able to:

- critically analyze and evaluate information and messages presented through print, speech, and mass media by:
  - — connecting and synthesizing information from different sources;
  - — formulating and expressing opinions;
  - — responding to questions requiring critical thinking;
  - — drawing conclusions;
  - — differentiating between literal and non-literal meanings;
  - — evaluating texts and media presentations for bias and misinformation;
  - — acknowledging the possibility of a variety of interpretations of the same text.

By the completion of **grade 5**, using appropriate texts, students will be able to:

- critically analyze and evaluate information and messages presented through print, speech, and mass media by:
  - — connecting and synthesizing information from different sources;
  - — formulating and expressing opinions;
  - — responding to questions requiring critical thinking;
  - — drawing conclusions;
  - — differentiating between literal and non-literal meanings;
  - — ***recognizing ambiguity in words or expressions;***
  - — acknowledging the possibility of a variety of interpretations of the same text;
  - — evaluating texts and media presentations for bias and misinformation;
  - — ***recognizing a variety of persuasive and propaganda techniques and how they are used in a variety of forms (e.g., advertising, campaigns, news formats, etc.).***

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Critically Analyze and Evaluate Information

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.142 express opinions. K.143 begin to differentiate between real and make-believe.	1.158 gather information from different sources, with teacher assistance. 1.159 express opinions. 1.160 draw conclusions. 1.161 differentiate between real and make-believe within text. 1.162 respond to open-ended questions.	2.165 begin to gather information from different sources. 2.166 formulate, express, and support opinions. 2.167 respond to open-ended questions to analyze and evaluate texts, with teacher assistance. 2.168 draw conclusions and make inferences. 2.169 recognize examples of non-literal language (idioms). 2.170 evaluate texts and media presentations for bias and misinformation, with teacher assistance. 2.171 realize that a text may have more than one interpretation.	3.165 connect and synthesize information from different sources. 3.166 formulate, express, and support opinions. 3.167 respond to open-ended questions to analyze and evaluate texts (e.g., author's purpose, character analysis). 3.168 draw conclusions and make inferences. 3.169 differentiate between literal and non-literal meaning. 3.170 evaluate texts and media presentations for bias and misinformation. 3.171 acknowledge the possibility of a variety of interpretations of the same text.	4.165 connect and synthesize information from different sources. 4.166 formulate, express, and support opinions. 4.167 respond to a variety of questions (critical thinking). 4.168 draw conclusions and make inferences. 4.169 differentiate between literal and non-literal meaning. 4.170 begin to recognize ambiguity in words or expressions. 4.171 acknowledge the possibility of a variety of interpretations for a text. 4.172 evaluate texts and media presentations for bias and misinformation. 4.173 recognize a variety of persuasive and propaganda techniques and how they are used in a variety of forms (e.g., television, advertisements, newspapers, magazines, catalogues), with teacher assistance.	5.166 connect and synthesize information from different sources. 5.167 formulate, express, and support opinions. 5.168 respond to a variety of questions (critical thinking). 5.169 draw conclusions and make inferences. 5.170 differentiate between literal and non-literal meaning. 5.171 recognize ambiguity in words or expressions. 5.172 acknowledge the possibility of a variety of interpretations for a text. 5.173 evaluate texts and media presentations for bias and misinformation. 5.174 recognize a variety of persuasive and propaganda techniques and how they are used in a variety of forms (e.g., television, advertisements, newspapers, magazines, and catalogues).

ENGLISH LANGUAGE ARTS STANDARD TWO

Students will construct, examine, and extend the meaning of literary, informative, and technical texts through listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using appropriate texts students will be able to:

- extend meaning by:
  - — offering a personal response to texts;
  - — applying information from printed, electronic, and oral texts to complete authentic tasks;
  - — using divergent thinking.
- become aware of the presence and role of the mass media in their lives by:
  - — evaluating how electronic, print, and cinematic messages affect them;
  - — recognizing the underlying purposes of media messages (e.g., profit, humanitarianism, support of artistry).

By the completion of **grade 5**, using appropriate texts students will be able to:

- extend meaning by:
  - — offering a personal response to texts;
  - — applying information from printed, electronic, and oral texts to complete authentic tasks;
  - — using divergent thinking.
- become aware of the presence and role of the mass media in their lives by:
  - — evaluating how electronic, print, and cinematic messages affect them;
  - — recognizing the underlying purposes of media messages (e.g., profit, humanitarianism, support of artistry).

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Extend Meaning and Become Aware of the Mass Media

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.144 respond to text in a variety of ways (e.g., art, speaking, writing).	1.163 respond to text in a variety of ways (e.g., art, speaking, writing).	2.172 respond to text in a variety of ways (e.g., art, speaking, writing).	3.172 offer a personal response to texts.	4.174 offer a personal response to texts.	5.175 offer a personal response to texts.
K.145 use oral directions to complete a task.	1.164 use information to complete a task.	2.173 use information from printed, electronic, and oral texts to complete tasks.	3.173 apply information from printed, electronic, and oral texts to complete authentic tasks.	4.175 apply information from printed, electronic, and oral texts to complete authentic tasks.	5.176 apply information from printed, electronic, and oral texts to complete authentic tasks.
K.146 use divergent thinking techniques (e.g., brainstorming and webbing) with teacher assistance.	1.165 use divergent thinking (e.g., brainstorming, webbing, cooperative learning).	2.174 use divergent thinking (e.g., brainstorming, webbing, cooperative learning).	3.174 use divergent thinking.	4.176 use divergent thinking.	5.177 use divergent thinking.
		2.175 begin to evaluate electronic, printed, and cinematic messages.	3.175 evaluate how electronic, print, and cinematic messages affect them.	4.177 evaluate how electronic, print, and cinematic messages affect them.	5.178 evaluate how electronic, print, and cinematic messages affect them.
		2.176 begin to recognize the underlying purposes of media messages.	3.176 recognize the underlying purposes of media messages (e.g., profit, humanitarianism, support of artistry).	4.178 recognize the underlying purposes of media messages (e.g., profit, humanitarianism, support of artistry).	5.179 recognize the underlying purposes of media messages (e.g., profit, humanitarianism, support of artistry).

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD THREE

Students will access, organize, and evaluate information gained by listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- **identify, locate, and select** sources of information relevant to a defined need:
  - — ***With direct teacher assistance***, students will:
    1) identify and locate a variety of sources including printed materials, personal interviews, oral reporting, forums, and technological forms of information;
    2) use procedures to gather information and ideas.
  - — **Independently**, students will extract information to achieve a specific purpose.

By the completion of **grade 5**, students will be able to:

- **identify, locate, and select** sources of information relevant to a defined need:
  - — ***With teacher guidance***, students will:
    1) identify and locate a variety of sources including printed materials, personal interviews, oral reporting, forums, and technological forms of information;
    2) use procedures to gather information and ideas.
  - — **Independently**, students will extract information to achieve a specific purpose.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Identify, Locate, and Select

Kindergarten

With direct teacher assistance, students will be able to:

K.147 use sources of information (e.g., books, television, resource people, radio, environmental print).

K.148 choose a source appropriate to topic.

Independently, students will be able to:

K.149 begin to ask how and why questions.

K.150 use listening skills.

K.151 use observation skills.

Grade One

With direct teacher assistance, students will be able to:

1.166 use multiple sources and identify where these can be obtained.

1.167 construct questions about topic.

1.168 tell or list facts from source(s).

Independently, students will be able to:

1.169 classify/categorize information.

1.170 use picture dictionaries to access information.

Grade Two

With direct teacher assistance, students will be able to:

2.177 locate material on specific topic.

2.178 construct questions about topic.

2.179 select and identify material relevant to topic.

2.180 list information relevant to topic (take notes).

Independently, students will be able to:

2.181 classify/categorize information according to purpose for research.

2.182 use table of contents.

Grade Three

With direct teacher assistance, students will be able to:

3.177 identify and locate a variety of printed and nonprinted sources.

3.178 use guide words, tables of content, index, and glossaries to locate information in reference books.

Independently, students will be able to:

3.179 construct questions about topic.

3.180 obtain relevant information from sources.

Grade Four

With teacher guidance, students will be able to:

4.179 practice research techniques to locate information.

Independently, students will be able to:

4.180 construct questions about topic.

4.181 use guide words, tables of content, index, and glossaries to obtain information in reference books.

Grade Five

With teacher guidance, students will be able to:

5.180 skim materials to develop an overview of content or locate specific information.

5.181 use available electronic databases to access information.

5.182 use procedures to gather data (e.g., note cards, graphic organizers).

Independently, students will be able to:

5.183 construct questions about a topic.

5.184 practice research techniques to obtain information.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD THREE

Students will access, organize, and evaluate information gained by listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- **organize**, manipulate, and express information and ideas relevant to a defined need:
  - — ***With direct teacher assistance***, students will:
    1) follow a process for research completion;
    2) use technology to synthesize information into a meaningful format to express ideas and experiences, and to create text, drawings, graphs, diagrams, photographs, videos, and graphics.
  - — **Independently**, students will present information which is sufficient in quantity and depth to achieve a specific purpose.

By the completion of **grade 5**, students will be able to:

- **organize**, manipulate, and express information and ideas relevant to a defined need:
  - — ***With teacher guidance***, students will:
    1) *develop and follow a process* for research completion;
    2) use technology to synthesize information into a meaningful format to express ideas and experiences, and to create text, drawings, graphs, diagrams, photographs, videos, and graphics.
  - — **Independently**, students will present information which is sufficient in quantity and depth to achieve a specific purpose, ***avoiding plagarism***.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Organize, Manipulate, and Express

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
With direct teacher assistance, students will be able to: K.152 organize information (e.g., classify, sequence, map, and graph). K.153 present information (e.g., graphs, pictures, experience stories, informal sharing). K.154 use available technology to create simple text and drawings.	**With direct teacher assistance, students will be able to:** 1.171 list sources. 1.172 use a structured form to present information in written or oral form (e.g., graphs, diagrams, organizers, reports). 1.173 use available technology to create simple text and drawings.	**With direct teacher assistance, students will be able to:** 2.183 use available technology to express ideas and information (e.g., drawings, graphs, text).	**With direct teacher assistance, students will be able to:** 3.181 use the research process: – choose and specify topic – focus questions – research focus areas – use organizational strategy (e.g., note cards, outlining) – write rough drafts – revise and edit – cite sources – prepare final copy. 3.182 use available technology to express ideas and information.	**With teacher guidance, students will be able to:** 4.182 use the research process: – choose and specify topic – focus questions – research focus areas – use organizational strategy (e.g., note cards, outlining) – write rough drafts – revise and edit – cite sources – prepare final copy. 4.183 use available technology to express ideas and information.	**With teacher guidance, students will be able to:** 5.185 use the research process: – choose and specify topic – focus questions – research focus areas – use organizational strategy (e.g., note cards, outlining) – write rough drafts – revise and edit – cite sources – prepare final copy. 5.186 use available technology to synthesize information into a meaningful format to express ideas and experiences, and to create text, drawings, graphs, diagrams, photographs, videos, and graphics.
	Independently, students will be able to: 1.174 organize information using pictures and words (e.g., classifying, sequencing, mapping, graphing).	**Independently, students will be able to:** 2.184 organize information (e.g., graphic organizers, simple outlines). 2.185 use specific information in logical sequence to write a report. 2.186 present information in oral and written form. 2.187 list sources.	**Independently, students will be able to:** 3.183 present information in oral and written form to achieve a specific purpose.	**Independently, students will be able to:** 4.184 begin to present information which is sufficient in quantity and depth to achieve a specific purpose, avoiding plagiarism.	**Independently, students will be able to:** 5.187 present information which is sufficient in quantity and depth to achieve a specific purpose, avoiding plagiarism.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD THREE

Students will access, organize, and evaluate information gained by listening, reading, and viewing.

END OF CLUSTER EXPECTATIONS

▼▼▼▼▼▼▼▼

By the completion of **grade 3**, students will be able to:

- **evaluate** both sources and information
  - — ***With direct teacher assistance***, students will
    1) establish criteria to use to differentiate between authoritative and non-authoritative sources;
    2) establish criteria by which sources and information can be analyzed for accuracy, bias, stereotypes, and validity.
  - — **Independently**, students will draw conclusions based upon information relevant to a specific purpose.

By the completion of **grade 5**, students will be able to:

- **evaluate** both sources and information
  - — ***With teacher guidance***, students will
    1) select sources which are authoritative;
    2) analyze sources and information for accuracy, bias, stereotypes, and validity.
  - — **Independently**, students will draw conclusions based upon information relevant to a specific purpose.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Evaluate

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
With direct teacher assistance, students will be able to: K.155 differentiate between fiction/nonfiction. **Independently, students will be able to:** K.156 differentiate between real and make-believe.	**With direct teacher assistance, students will be able to:** 1.175 differentiate between fiction/nonfiction. 1.176 determine if source is appropriate by using illustrations and content.	**With direct teacher assistance, students will be able to:** 2.188 determine if source is appropriate by using illustrations and content. 2.189 establish criteria by which sources and information can be analyzed for accuracy, bias, stereotypes, and validity. **Independently, students will be able to:** 2.190 differentiate between fiction/nonfiction.	**With direct teacher assistance, students will be able to:** 3.184 establish criteria to use to differentiate between authoritative and non-authoritative sources. 3.185 establish criteria by which sources and information can be analyzed for accuracy, bias, stereotypes, and validity. **Independently, students will be able to:** 3.186 draw conclusions based upon information relevant to a specific purpose.	**With teacher guidance, students will be able to:** 4.185 establish criteria to use to differentiate between authoritative and non-authoritative sources. 4.186 analyze sources for accuracy, bias, stereotypes, and validity. **Independently, students will be able to:** 4.187 draw conclusions based upon information relevant to a specific purpose.	**With teacher guidance, students will be able to:** 5.188 establish criteria to use to differentiate between authoritative and non-authoritative sources. 5.189 analyze sources for accuracy, bias, stereotypes, and validity. **Independently, students will be able to:** 5.190 draw conclusions based upon information relevant to a specific purpose.

ENGLISH LANGUAGE ARTS STANDARD FOUR

Students will use literary knowledge accessed through print and visual media to connect self to society and culture.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using literature appropriate for age, stage, and interests, students will be able to:

1. **Identify, locate, and select** sources of information relevant to a defined need:
   - ***With direct teacher assistance***, students will
     1) identify and locate a variety of sources including printed materials, personal interviews, oral reporting, forums, and technological forms of information;
     2) use procedures to gather information and ideas.
   - **Independently**, students will extract information to achieve a specific purpose.

By the completion of **grade 5**, using literature appropriate for age, stage, and interests, students will be able to:

1. connect their own **experiences** to those of literary characters by:
   - explaining the reasons for a character's actions;
   - responding to the sensory, intellectual, and emotional elements of literature;
   - relating to the feelings of characters of varying ages, genders, ***nationalities, races, cultures, religions, and disabilities;***
   - ***identifying with characters based on a clear understanding of motivation;***
   - relating incidents in the text to life's experiences;
   - relating the theme of literary text and media to personal experiences;
   - seeking other literary texts and media as the result of a literary experience.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Connect with Characters

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.157 describe feelings and actions of character(s). **K.158** relate previous experiences to text.	**1.177** describe feelings and actions of character(s). **1.178** relate previous experiences to text. **1.179** begin to respond to sensory and emotional elements of literature. **1.180** begin to seek and select materials related to a piece of literature (e.g., same character, author, topic).	**2.191** describe character's actions/feelings and possible motivations. **2.192** relate previous experiences to what is read. **2.193** respond to sensory and emotional elements of literature. **2.194** begin to respond to intellectual elements of literature. **2.195** seek and select materials related to a piece of literature (e.g., same character, author, topic).	**3.187** explain the reasons for a character's actions. **3.188** respond to sensory, intellectual, and emotional elements of literature. **3.189** understand the feelings of characters of varying genders, races, and disabilities. **3.190** relate incidents in the text or media to life's experiences. **3.191** seek other literary texts and media as the result of a literary experience.	**4.188** explain the reasons for a character's actions. **4.189** respond to sensory, intellectual, and emotional elements of literature. **4.190** understand the feelings of characters of varying ages, genders, races, nationalities, cultures, religions, and disabilities. **4.191** begin to identify with characters based on a clear understanding of motivation. **4.192** relate incidents in the text or media to life's experiences. **4.193** begin to relate the themes of literary text and media to personal experiences. **4.194** seek other literary texts and media as the result of a literary experience.	**5.191** explain the reasons for a character's actions. **5.192** respond to sensory, intellectual, and emotional elements of literature. **5.193** understand the feelings of characters of varying ages, genders, races, nationalities, cultures, religions, and disabilities. **5.194** identify with characters based on a clear understanding of motivation. **5.195** relate incidents in the text or media to life's experiences. **5.196** relate the themes of literary text and media to personal experiences. **5.197** seek other literary texts and media as the result of a literary experience.

ENGLISH LANGUAGE ARTS STANDARD FOUR

Students will use literary knowledge accessed through print and visual media to connect self to society and culture.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using literature appropriate for age, stage, and interests, students will be able to:

- respond to literary **text** and media using interpretive, critical, and evaluative processes by
  - — making inferences about content, events, characters, setting;
  - — identifying the differences between genre.

By the completion of **grade 5**, using literature appropriate for age, stage, and interests, students will be able to:

- respond to literary **text** and media using interpretive, critical, and evaluative processes by
  - — making inferences about content, events, characters, setting;
  - — recognizing the effect of ***such literary devices as figurative language***, dialogue, and description;
  - — ***recognizing the impact of authors' decisions such as word choice and content;***
  - — ***recognizing literary merit;***
  - — ***understanding*** the differences between genres;
  - — ***recognizing the effect of point of view.***

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

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PERFORMANCE INDICATORS

Respond to Literary Text and Media

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.159 begin to predict actions of characters. **K.160** recognize the difference between real and make-believe. **K.161** recognize various forms of literature.	**1.181** predict actions of characters. **1.182** recognize various forms of literature.	**2.196** make logical predictions and inferences about content, events, characters, and setting. **2.197** identify various forms of literature.	**3.192** make inferences about content, events, characters, setting. **3.193** identify the differences between genres.	**4.195** make inferences about content, events, characters, setting. **4.196** begin to recognize the effect of literary devices (e.g., figurative language, dialogue, description). **4.197** begin to recognize the impact of author's decisions (e.g., word choice, content). **4.198** begin to recognize literary merit. **4.199** understand the differences between genres. **4.1100** begin to recognize the effect of point of view.	**5.198** make inferences about content, events, characters, setting. **5.199** recognize the effect of literary devices (e.g., figurative language, dialogue, description). **5.1100** recognize the impact of author's decisions (e.g., word choice, content). **5.1101** recognize literary merit. **5.1102** understand the differences between genres. **5.1103** recognize the effect of point of view.

(Skills are cumulative, utilizing grade-appropriate materials.)

ENGLISH LANGUAGE ARTS STANDARD FOUR

Students will use literary knowledge accessed through print and visual media to connect self to society and culture.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, using literature appropriate for age, stage, and interests, students will be able to:

- demonstrate an appreciation for a broad range of **culturally diverse literary texts and media** created by historical, modern, and contemporary authors through:
  - — responding to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities;
  - — responding to literary texts and media representative of various nations and cultures.
- apply knowledge gained from literature as a basis for understanding self and society by:
  - — using literature as a resource for shaping decisions;
  - — using literature as a resource for understanding social issues.

By the completion of **grade 5**, using literature appropriate for age, stage, and interests, students will be able to:

- demonstrate an appreciation for a broad range of culturally diverse literary **texts** and media created by historical, modern, and contemporary authors through:
  - — responding to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities;
  - — responding to literary texts representative of various historical periods ranging from the ancient world to the present;
  - — ***responding to texts representative of world literature.***
- apply knowledge gained from literature as a basis for understanding self and society by:
  - — using literature as a resource for shaping decisions;
  - — using literature as a resource for understanding social issues.

The areas listed above will serve as the basis for English Language Arts assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Connect Self to Society and Culture

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.162 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.	1.183 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.	2.198 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.	3.194 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.	4.1101 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.	5.1104 respond to literary texts and media representing the diversity of American cultural heritage inclusive of ages, genders, nationalities, races, religions, and disabilities.
K.163 respond to literary texts and media representative of various nations and cultures.	1.184 respond to literary texts and media representative of various nations and cultures.	2.199 respond to literary texts and media representative of various nations and cultures.	3.195 respond to literary texts and media representative of various nations and cultures.	4.1102 respond to literary texts and media representative of various historical periods ranging from the ancient world to the present.	5.1105 respond to literary texts and media representative of various historical periods ranging from the ancient world to the present.
K.164 begin to relate ideas from literature and media to situations involving self and society.	1.185 begin to relate ideas from literature and media to situations involving self and society.	2.1100 relate ideas from literature and media to situations involving self and society.	3.196 use literature as a resource for shaping decisions.	4.1103 respond to texts representative of world literature.	5.1106 respond to texts representative of world literature.
K.165 discuss text(s).	1.186 discuss text(s).	2.1101 relate ideas from literature and media to understand social issues, with teacher assistance.	3.197 use literature as a resource for understanding social issues.	4.1104 use literature as a resource for shaping decisions.	5.1107 use literature as a resource for shaping decisions.
		2.1102 discuss text(s).		4.1105 use literature as a resource for understanding social issues.	5.1108 use literature as a resource for understanding social issues.

2/98 (Skills are cumulative, utilizing grade-appropriate materials.)

GLOSSARY OF TERMS

English Language Arts Performance Indicators Grades K–5

A

Appositive – a word or phrase placed next to another word (usually set off by commas or in parentheses) to clarify or define. For example, "Jute, the plant, is grown in India."

Antagonist – the character who opposes the protagonist; sometimes, but not necessarily, a villain.

Assistance – coaching from peers, other individuals, and/or teachers to refine, practice, and reinforce concepts from prior instruction.

Audience – the person or persons to whom written or oral communication is addressed. The intended reader or hearer of written or spoken text.

C

Chunking – the process, or result, of grouping smaller units into larger, more meaningful ones.

Circular structure – an organizational pattern authors use to purposefully begin and end a story, poem, or drama in the same place, with the same event, or the same thought.

Cogent reasoning – students' ability to reach a conclusion based on logic appropriate to the students' age and developmental level.

D

Decoding – translating written words into spoken or subvocal words.

Deductive (logical) reasoning – process of demonstrating that if certain statements (axioms, postulates, theorems) are accepted as true, then other statements can be shown or proved to follow from them.

Digraph – two letters which represent one speech sound, as *ch* for /ch/ in *chin*.

Divergent thinking – the ability to elaborate and expand in order to generate new ideas or alternative interpretations of given information.

F

Fluency – freedom from word identification problems which might hinder expression of ideas during oral reading.

H

Homograph – a word with the same spelling as another word, whether or not pronounced alike, as *pen* (a writing instrument) vs. *pen* (an enclosure), or *bow* (and arrow) vs. *bow* (of a ship).

Glossary of Terms

(continued)

I

Idiom – an expression that does not mean what it literally says: to have the upper hand has nothing to do with "hands" but means to have an advantage.

Inductive reasoning – process of observing data, recognizing patterns, and making generalizations from the observations.

M

Mode – a strategy or manner for thinking and developing an idea, e.g.,

- Cause and effect – detailing the connection between a result and the event(s) that preceded it.
- Classification – grouping objects together based on their similarities
- Comparison – identifying and explaining the similarities present in two subjects (topics)
- Contrast – identifying and explaining the differences between two subjects
- Definition – identifying the class/category in which an object belongs and then showing (delineating) how the object's unique characteristics distinguish it from other members of the same class/category
- Description – creating a vivid impression of the topic so the reader can visualize it easily
- Evaluation – making a value judgment that is supported by evidence
- Exemplification – using specific illustrations/experiences to clarify the topic
- Narration – telling a story or telling about an event (real or fictional)

M continued

- Process – detailing the steps/stages involved in performing a task or creating a product.

Writers may select one or more of these modes to achieve their purpose.

O

Onset – that part of a syllable preceding the syllable peak; normally, the consonants preceding the vowel of a syllable, as str in strip.

P

Phoneme – a minimal linguistic unit in spoken language whose replacement can result in a meaning difference, as /p/, /b/ in pin, bin.

Protagonist – the central figure (could be the hero or heroine) in a drama or narrative.

Purpose – the writer's specific intention (i.e., to inform, to persuade, to express self), called "function" by some scholars.

R

Rhetorical form – the full spectrum of options available to the speaker or writer. Considerations for the forms which discourse might take include, but are not necessarily limited to, genre, subject matter, situation, audience, convention, context.

S

Situational context – the full spectrum of factors which a speaker must take into consideration when planning and delivering an oral address.

Glossary of Terms

(continued)

T

Teacher assistance – teacher-driven direct instruction and guided practice of emerging and non-mastered concepts.

Technologies – devices which include but are not limited to pen, pencil, and paper; audio visual materials; typewriters, word processors, computers, interactive devices, and telecommunications.

Text – any language-based communication, whether written, spoken, audio- or videotaped, or transmitted electronically.

Think-aloud – a strategy by which readers voice their thoughts aloud to explore and clarify their understanding of a text.

V

Voice – the author's personal and distinctive touch, usually reflected in his or her "style." Shel Silverstein writes with "voice."

MATHEMATICS STANDARDS ONE THROUGH FOUR

Mathematical Processes

END OF CLUSTER EXPECTATIONS

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MATHEMATICS STANDARD ONE: Students will develop their ability to SOLVE PROBLEMS by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts; to formulate their own problems; to find solutions to problems from everyday situations; to develop and apply strategies to solve a wide variety of problems; and to integrate mathematical reasoning, communication and connections.

MATHEMATICS STANDARD TWO: Students will develop their ability to COMMUNICATE MATHEMATICALLY by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing; to translate this information into mathematical language and symbols; to process this information mathematically; and to present results in written, oral, and visual formats.

MATHEMATICS STANDARD THREE: Students will develop their ability to REASON MATHEMATICALLY, by solving problems in which there is a need to investigate significant mathematical ideas in all content areas; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thinking; to ask questions to extend their thinking and to construct their own learning.

MATHEMATICS STANDARD FOUR: Students will develop their ability to make MATHEMATICAL CONNECTIONS by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Mathematical Processes

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.201 develop strategies to solve problems.	1.201 develop and apply strategies to solve problems.	2.201 develop and apply strategies to solve problems.	3.201 develop and apply strategies to solve problems.	4.201 develop and apply strategies to solve problems.	5.201 develop and apply strategies to solve problems.
K.202 use appropriate mathematical language to explain their thinking.	1.202 use mathematical language to explain their thinking.	2.202 use mathematical notation and language to explain and defend their thinking.	3.202 use mathematical notation and language to explain and defend their thinking.	4.202 use mathematical notation and language to explain and defend their thinking.	5.202 use mathematical notation and language to explain and defend their thinking.
	1.203 make and test conjectures.	2.203 make and test conjectures.	3.203 make and test conjectures	4.203 make and test conjectures.	5.203 make and test conjectures.
	1.204 determine if a mathematical solution is reasonable.	2.204 determine if a mathematical solution is reasonable.	3.204 determine if a mathematical solution is reasonable.	4.204 determine if a mathematical solution is reasonable.	5.204 determine if a mathematical solution is reasonable.

MATHEMATICS STANDARD FIVE

Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by selecting appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and nonstandard units.
- determine the value of a given set of coins.
- measure and compute the perimeter of rectangles.
- use multiple computational procedures with whole numbers.
- add and subtract single-digit and multi-digit whole numbers.
- multiply whole numbers using at least one single-digit factor.
- divide whole numbers using single-digit divisors.
- make estimates before measuring, counting, and computing.
- round whole numbers and values of money as an estimation strategy.
- select appropriate measures to compare objects.
- compare objects through measurable attributes.
- read and write decimal notation when representing money.

By the completion of **grade 5**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, weight/mass, capacity and area to the degree of accuracy required using standard and nonstandard units.
- describe the structure and the use of systems of measurement.
- estimate, measure, and compute the perimeter of polygons.
- use algorithms for addition, subtraction, multiplication, and division with understanding.
- use multiple computational procedures to add and subtract fractions and decimals, to multiply fractions, and to divide whole numbers using multi-digit divisors.
- estimate, measure, and compute the area of rectangles.
- make estimates before measuring and computing and determine if an estimate is reasonable.
- round decimals as an estimation strategy.
- determine if an estimate is more appropriate than an exact answer.
- make change by counting on and counting back.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Estimation, Measurement, and Computation

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.203 describe and compare linear measures (e.g., longer/shorter, taller/shorter, thick/thin). K.204 describe and compare volume/capacity (e.g., full/empty and more/less). K.205 describe and compare the mass/weight of objects (e.g., light/heavy). K.206 describe and compare time (e.g., long time/short time).	1.205 select a non-standard unit* and use it to estimate, measure, and compare length, height, width, and distance around. 1.206 estimate, measure, and compare mass/weight using non-standard units* of measure. 1.207 measure/describe (e.g., yesterday/today/tomorrow, before/after). 1.208 identify the value of a penny, nickel, dime, quarter, and dollar.	2.205 use standard and non-standard units* of measure to estimate, measure, and compare length, height, width, and distance around. 2.206 estimate, cover, count, and compare areas using non-standard units*. 2.207 estimate, count/fill, and compare volume/capacity using non-standard units* of measure. 2.208 select an appropriate non-standard unit* and use it to measure and compare the mass/weight of objects.	3.205 select the most appropriate standard unit* and use it to estimate, measure, and compare length, height, width, and distance around. 3.206 estimate and measure the perimeter of rectangles using non-standards units*. 3.207 select an appropriate non-standard unit* and use it to cover, count, and compare the area of shapes. 3.208 select an appropriate non-standard unit* and use it to count/fill and compare volume/capacity.	4.205 estimate and measure the perimeter of polygons. 4.206 select an appropriate standard square unit* and use it to cover, count, and compare the area of rectangles. 4.207 use standard units* of measure to estimate, count/fill, and compare volume/capacity. 4.208 use a clock to determine the amount of elapsed time. 4.209 make change by counting on or counting back.	5.205 compare measurable attributes of perimeter and area. 5.206 select an appropriate standard square unit* and use it to cover, count, and compare the area of shapes. 5.207 select an appropriate standard unit* and use it to count/fill and compare volume/capacity. 5.208 make change by counting on and counting back. 5.209 use and explain strategies • to add and subtract fractions • to add and subtract decimals • to divide whole numbers using two-digit divisors.

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* *Non-standard units could be unifix cubes, paper clips, the edge of an index card, a hand-span, etc. Standard units refer to those in both the metric and customary measurement systems.*

MATHEMATICS STANDARD FIVE

Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by selecting appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and nonstandard units.
- determine the value of a given set of coins.
- measure and compute the perimeter of rectangles.
- use multiple computational procedures with whole numbers.
- add and subtract single-digit and multi-digit whole numbers.
- multiply whole numbers using at least one single-digit factor.
- divide whole numbers using single-digit divisors.
- make estimates before measuring, counting, and computing.
- round whole numbers and values of money as an estimation strategy.
- select appropriate measures to compare objects.
- compare objects through measurable attributes.
- read and write decimal notation when representing money.

By the completion of **grade 5**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, weight/mass, capacity and area to the degree of accuracy required using standard and nonstandard units.
- describe the structure and the use of systems of measurement.
- estimate, measure, and compute the perimeter of polygons.
- use algorithms for addition, subtraction, multiplication, and division with understanding.
- use multiple computational procedures to add and subtract fractions and decimals, to multiply fractions, and to divide whole numbers using multi-digit divisors.
- estimate, measure, and compute the area of rectangles.
- make estimates before measuring and computing and determine if an estimate is reasonable.
- round decimals as an estimation strategy.
- determine if an estimate is more appropriate than an exact answer.
- make change by counting on and counting back.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Estimation, Measurement, and Computation

Kindergarten

Students will be able to:

K.207 describe and compare temperature (e.g., hotter, colder, warmer, cooler).

K.208 recognize a penny, nickel, dime, and quarter from a set of coins.

Grade One

Students will be able to:

1.209 identify the value of a group of pennies, a group of nickels, or a group of dimes.

1.210 know and use addition and subtraction fact families to 12.

(e.g., 6 + 6 = 1
12 - 6 = 6)

1.211 develop, use, and explain strategies

- to add and subtract single-digit and two-digit whole numbers
- to add 3 single-digit addends.

1.212 select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers.

Grade Two

Students will be able to:

2.209 use the calendar to measure intervals of (e.g., days, weeks, months).

2.210 tell time to the nearest half hour.

2.211 read and record temperature to the nearest 2 degrees.

2.212 identify the value of a mixed set of coins with a value less than or equal to a dollar.

2.213 read decimal notation when representing money.

2.214 know and use addition and subtraction fact families to 20.

(e.g., 10 + 10 = 20
20 - 10 = 10)

Grade Three

Students will be able to:

3.209 estimate, measure, and compare mass/weight using standard units of measure.

3.210 measure time using standard units (e.g., minutes, hours, days, weeks, years).

3.211 read and record temperature to the nearest degree.

3.212 determine the change due from a purchase.

3.213 write decimal notation when representing money.

3.214 know and use multiplication and division fact families through at least 25.

(e.g., 5 x 5 = 25
25 ÷ 5 = 5)

Grade Four

Students will be able to:

4.210 know and use multiplication and division fact families through at least 100.

(e.g., 10 x 10 = 100
100 ÷ 10 = 10)

4.211 develop, use, and explain strategies

- to add and subtract common fractions
- to add and subtract decimals to the tenths and hundredths place values
- to estimate quotients using two-digit divisors.
- to multiply whole numbers with at least one two-digit factor.

4.212 develop, use, and explain algorithms (rules) for addition and subtraction.

Grade Five

Students will be able to:

5.210 develop, use, and explain algorithms (rules) for multiplication and division.

5.211 select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers.

5.212 make estimates before measuring and computing and determine if an estimate is reasonable.

5.213 determine if an estimate is more appropriate than an exact answer.

5.214 round decimals as an estimation strategy.

MATHEMATICS STANDARD FIVE

Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by selecting appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and nonstandard units.
- determine the value of a given set of coins.
- measure and compute the perimeter of rectangles.
- use multiple computational procedures with whole numbers.
- add and subtract single-digit and multi-digit whole numbers.
- multiply whole numbers using at least one single-digit factor.
- divide whole numbers using single-digit divisors.
- make estimates before measuring, counting, and computing.
- round whole numbers and values of money as an estimation strategy.
- select appropriate measures to compare objects.
- compare objects through measurable attributes.
- read and write decimal notation when representing money.

By the completion of **grade 5**, students will be able to:

- estimate and then measure length, perimeter, time, temperature, weight/mass, capacity and area to the degree of accuracy required using standard and nonstandard units.
- describe the structure and the use of systems of measurement.
- estimate, measure, and compute the perimeter of polygons.
- use algorithms for addition, subtraction, multiplication, and division with understanding.
- use multiple computational procedures to add and subtract fractions and decimals, to multiply fractions, and to divide whole numbers using multi-digit divisors.
- estimate, measure, and compute the area of rectangles.
- make estimates before measuring and computing and determine if an estimate is reasonable.
- round decimals as an estimation strategy.
- determine if an estimate is more appropriate than an exact answer.
- make change by counting on and counting back.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Estimation, Measurement, and Computation

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Students will be able to: 1.213 make estimates before measuring, counting, and computing.	**Students will be able to:** 2.215 develop, use, and explain strategies to add and subtract two- or three-digit whole numbers. 2.216 select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers. 2.217 make estimates before measuring, counting, and computing.	**Students will be able to:** 3.215 develop, use, and explain strategies • to add and subtract single-digit and multi-digit whole numbers • to multiply whole numbers with at least one single-digit factor • to divide whole numbers using single-digit divisors. 3.216 select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers. 3.217 make estimates before measuring, counting, and computing. 3.218 round whole numbers and values of money to the nearest ten, hundred, and dollar as an estimation strategy.	**Students will be able to:** 4.213 select appropriate methods of calculation from among mental math, paper and pencil, calculators, or computers. 4.214 make estimates before measuring and computing and determine if an estimate is reasonable. 4.215 determine if an estimate is more appropriate than an exact answer. 4.216 round money as an estimation strategy.	

MATHEMATICS STANDARD SIX

Students will develop NUMBER SENSE by solving problems in which there is a need to represent and model real numbers verbally, physically, and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- connect physical, verbal, and symbolic representations of **whole numbers**.
- show whole/part relationships.
- use fractions to represent part of a whole and part of a set.
- decompose and recompose **whole numbers** using addition and subtraction.
- build **whole numbers** using the concept of place value using base ten.
- demonstrate an understanding of order relations for whole numbers.
- examine the relative effect of operations on **whole numbers**.
- recognize the arbitrary size of a unit.
- connect repeated addition with multiplication and repeated subtraction with division.
- recognize inverse operations: subtraction/addition and division/multiplication.
- count sets of objects and units of measure.
- count on, count back, and count by multiples.

By the completion of **grade 5**, students will be able to:

- connect physical, verbal, and symbolic representations of **fractions**, **decimals**, and **whole numbers**.
- decompose and recompose **whole numbers** using all arithmetic operations.
- build **decimal** representations using base ten.
- demonstrate the need for and the connection between **decimals** and **fractions**.
- demonstrate an understanding of order relations for **fractions**, **decimals**, and **whole numbers** using physical, verbal, and symbolic representations.
- examine the relative effect of operations on **whole numbers**, **fractions**, and **decimals**.
- recognize the arbitrary size of a unit and its relationship to **fractional** and **decimal** parts.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Number Sense

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.209 connect representations of numbers **less than 12** (e.g., concrete materials, drawings or pictures, mathematical symbols). K.210 show whole/part relationships of whole numbers less than 10. (e.g., 10 is 6 and 4 10 is 3 and 7) K.211 create groups of 10 using manipulatives.	1.214 connect representations of **numbers less than 100** (e.g., concrete materials, drawings or pictures, mathematical symbols). 1.215 show whole/part relationships of whole numbers less than 20. (e.g., 16 = 10 + 6 16 = 20 - 4) 1.216 build **whole numbers** less than 100 using groups of 1's and 10's.	2.218 connect representations of **numbers less than 1,000** (e.g., concrete materials, drawings or pictures, mathematical symbols). 2.219 use addition and subtraction on **whole numbers** with understanding • understand and use subtraction and addition as inverse operations. 2.220 show whole/part relationships of whole numbers less than 100. (e.g., 77 = 80 - 3 77 = 75 + 2)	3.219 connect representations of **whole numbers** (e.g., concrete materials, drawings or pictures, mathematical symbols). 3.220 use multiplication and division on **whole numbers** with understanding • connect repeated addition with multiplication and repeated subtraction with division. • understand and use division and multiplication as inverse operations. 3.221 show whole/part relationships.	4.217 connect representations of **decimal** and **fraction values** for halves, fourths, and tenths (e.g., concrete materials, drawings or pictures, mathematical symbols). 4.218 use operations on **whole numbers** with understanding. 4.219 show whole/part relationships of common fractions and decimals. 4.220 demonstrate place value concepts of numbers to hundredths place.	5.215 connect representations of **decimals, fractions,** and **percents** (e.g., concrete materials, drawings or pictures, mathematical symbols). 5.216 use addition and subtraction with **fractions** and **decimals** with understanding. 5.217 show whole/part relationships of common **fractions, decimals,** and **percents.** 5.218 demonstrate place value concepts with **decimals**.

MATHEMATICS STANDARD SIX

Students will develop NUMBER SENSE by solving problems in which there is a need to represent and model real numbers verbally, physically, and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- connect physical, verbal, and symbolic representations of **whole numbers**.
- show whole/part relationships.
- use fractions to represent part of a whole and part of a set.
- decompose and recompose **whole numbers** using addition and subtraction.
- build **whole numbers** using the concept of place value using base ten.
- demonstrate an understanding of order relations for whole numbers.
- examine the relative effect of operations on **whole numbers**.
- recognize the arbitrary size of a unit.
- connect repeated addition with multiplication and repeated subtraction with division.
- recognize inverse operations: subtraction/addition and division/multiplication.
- count sets of objects and units of measure.
- count on, count back, and count by multiples.

By the completion of **grade 5**, students will be able to:

- connect physical, verbal, and symbolic representations of **fractions**, **decimals**, and **whole numbers**.
- decompose and recompose **whole numbers** using all arithmetic operations.
- build **decimal** representations using base ten.
- demonstrate the need for and the connection between **decimals** and **fractions**.
- demonstrate an understanding of order relations for **fractions**, **decimals**, and **whole numbers** using physical, verbal, and symbolic representations.
- examine the relative effect of operations on **whole numbers**, **fractions**, and **decimals**.
- recognize the arbitrary size of a unit and its relationship to **fractional** and **decimal** parts.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Number Sense

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.212 count sets of objects and non-standard units of measure up to 20. K.213 demonstrate an understanding of order relations for **whole numbers through 10.**	1.217 identify equal parts of a whole and equal parts of a set using halves. 1.218 count sets of objects and non-standard units of measure up to 100 by 1's, 2's, 5's, and 10's. 1.219 demonstrate an understanding of order relations for **whole numbers less than 100.**	2.221 build **whole numbers** less than 1,000 using groups of 1's, 10's, and 100's. 2.222 identify equal parts of a whole and equal parts of a set using halves, fourths, and eighths. 2.223 count on and count back by 1's, 2's, 5's, 10's, and 100's between any two numbers less than 1,000. 2.224 demonstrate an understanding of order relations for **whole numbers less than 1,000.**	3.222 build **whole numbers** less than 10,000 using groups of 1's, 10's, 100's, and 1,000's. 3.223 identify equal parts of a whole and equal parts of a set using halves, thirds, fourths, sixths, eighths, and tenths. 3.224 count on, count back, and count by multiples. 3.225 recognize the differences in size of a unit. 3.226 demonstrate an understanding of order relations for **whole numbers**.	4.221 recognize the differences in size of a unit and how it affects the size of **fractional** and **decimal** parts. 4.222 demonstrate an understanding of order relations for **common fractions**, and for **decimals** in similar place values using physical, verbal, and symbolic representations.	5.219 demonstrate an understanding of order relations for **fractions** and for **decimals** using physical, verbal, and symbolic representations.

MATHEMATICS STANDARD SEVEN

Students will develop an understanding of ALGEBRA by solving problems in which there is a need to progress from the concrete to the abstract using physical models, equations, and graphs; to generalize number patterns; and to describe, represent, and analyze relationships among variable quantities.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- represent operations with symbols.
- use symbols as representations of variables such as missing addends or factors.
- generate and write number sentences vertically and horizontally.
- solve open sentences using informal methods.

By the completion of **grade 5**, students will be able to:

- solve equations using methods such as inverse operations, mental math, and guess and check.
- find solutions to inequalities from a given replacement set.
- use letters as variable representations.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Algebra

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Students will be able to: 1.220 represent mathematical concepts with symbols for addition, subtraction, and equals.	**Students will be able to:** 2.225 represent mathematical concepts with symbols for less than, greater than, and not equal to. 2.226 use symbols as representations of unknown quantities such as missing addends. 2.227 use informal methods to solve open sentences which model real-life situations and explain the solution. 2.228 place and read whole numbers on a number line.	**Students will be able to:** 3.227 represent and use operations with symbols. 3.228 use symbols as representations of unknown quantities. 3.229 solve open sentences, such as $\square + 3 = 11$, using informal methods and explain the solution. 3.230 find the distance between 2 points on a number line.	**Students will be able to:** 4.223 use letters as representations of unknown variable quantities. (e.g., $8 + n = 11$) 4.224 explain how to solve equations. 4.225 find numbers that make inequalities true such as $\square < 8$ or $2 + \square < 10$ 4.226 place and read fractions and decimals (e.g., halves, fourths, and tenths) on a number line. 4.227 place and read points on a coordinate plane.	**Students will be able to:** 5.220 use letters as representations of unknown variable quantities. 5.221 explain how to solve equations. 5.222 find numbers that make inequalities true such as $\square < 8$ or $2 + \square < 10$ 5.223 place and read fractions and decimals on a number line. 5.224 place and read points on a coordinate plane.

MATHEMATICS STANDARD EIGHT

Students will develop SPATIAL SENSE and an understanding of GEOMETRY by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- sort solid and plane figures by common attributes.
- recognize congruence of geometric figures in the real world.
- identify and create symmetrical shapes (line symmetry).
- draw an example of a flip, slide, or turn given a model.
- draw a square, rectangle, and triangle on grid paper.
- describe the effect of combining two or more shapes.

By the completion of **grade 5**, students will be able to:

- visualize, represent, and draw geometric figures (triangle, quadrilaterals, and regular polygons).
- given a net, build three-dimensional figures such as a cube, rectangular prism cylinder, and square pyramid.
- manipulate and draw polygons using flips, slides, and turns.
- define polygons using their attributes such as number of sides, parallel or perpendicular sides, number of vertices, and classification of angles.
- identify, describe, compare, and classify two-dimensional figures and investigate their relationships.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Spatial Sense and Geometry

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:
K.214 name and sort figures by shape: square, rectangle, triangle, and circle. K.215 demonstrate the relative position of objects (e.g., over, under, beside, between, outside, inside).	1.221 name and sort plane figures by size and shape. 1.222 identify the new shape formed by combining two shapes. 1.223 describe the relative position of objects (e.g., near, far, left, right). 1.224 match figures by size and shape.	2.229 name and sort solid and plane figures by common attributes. 2.230 describe the effect of combining two or more shapes and identify the new shape. 2.231 identify symmetrical shapes in the real world. 2.232 demonstrate a flip, slide, and turn of a given shape. 2.233 identify congruent shapes in the real world.	3.231 name and sort solid and plane figures using several attributes. 3.232 verify symmetrical shapes by drawing lines of symmetry. 3.233 identify an example of a flip, slide, and turn.	4.228 identify and describe plane and solid figures using models. 4.229 define polygons using their attributes (e.g., number of sides, number of vertices, lines of symmetry). 4.230 draw an example of a flip, slide, or turn given a model. 4.231 draw plane figures with identified attributes with and without grid paper.	5.225 compare and classify plane and solid figures using models. 5.226 define polygons using their attributes (e.g., number of sides, parallel or perpendicular sides, number of vertices, classification of angles, lines of symmetry). 5.227 investigate and predict how shapes change when combined or subdivided. 5.228 given a net (template), build three-dimensional figures. 5.229 manipulate and draw polygons using flips, slides, and turns. 5.230 draw plane figures with identified attributes.

MATHEMATICS STANDARD NINE

Students will develop an understanding of STATISTICS and PROBABILITY by solving problems in which there is a need to collect, appropriately represent, and interpret data; to make inferences or predictions and to present convincing arguments; and to model mathematical situations to determine the probability.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- collect data by observing, measuring, surveying, and counting.
- demonstrate a variety of techniques for representing and organizing data such as using physical objects, tallies, pictographs, and bar graphs.
- interpret data by: looking for patterns and relationships, considering cause and effect, drawing conclusions, answering the stated question or related questions.
- determine the likelihood of a simple chance event.

By the completion of **grade 5**, students will be able to:

- systematically collect, organize, and describe data.
- construct and describe displays of data.
- calculate and use the mean to interpret data.
- select and use data displays such as line plots, tables, histograms, and scale pictographs.
- interpret data and make convincing arguments that are based on data analysis and previous experiences.
- list all possible outcomes for an experiment using a tree diagram.
- find the probability of a single event based on an experiment with equally likely outcomes.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Statistics and Probability

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.216 demonstrate a variety of ways to represent and organize data using physical objects. K.217 interpret data by simple comparisons (e.g., more, less, the same).	1.225 collect data by observing, measuring, surveying, and counting. 1.226 demonstrate a variety of techniques to represent and organize data (e.g., physical objects, pictographs). 1.227 interpret data by making comparisons (e.g., how many more). 1.228 predict the chance of an event happening (e.g., never, sometimes, always).	2.234 collect data by observing, measuring, surveying, and counting. 2.235 demonstrate a variety of techniques for representing and organizing data (e.g., physical objects, tallies, pictographs, line plots). 2.236 use various methods to interpret data (e.g., looking for patterns and relationships, drawing conclusions, answering the stated question or related questions). 2.237 describe the likelihood of an outcome (e.g., likely, unlikely).	3.234 collect data by observing, measuring, surveying, and counting. 3.235 demonstrate a variety of techniques for representing and organizing data (e.g., tallies, pictographs, bar graphs. 3.236 use various methods to interpret data (e.g., looking for patterns and relationships, drawing conclusions, answering the stated question or related questions generated by students). 3.237 use probability experiments to find the likelihood of the outcomes of a simple chance event.	4.232 systematically collect, organize, and describe data. 4.233 construct and describe displays of data. 4.234 select and use data displays (e.g., tables, scale pictographs). 4.235 support conclusions drawn from interpretation of data. 4.236 use vocabulary to describe outcomes (e.g., possible/impossible, certain/uncertain, less likely/equally likely/more likely). 4.237 conduct a probability experiment and draw conclusions from the results.	5.231 systematically collect, organize, and describe data. 5.232 construct and describe displays of data. 5.233 select and use data displays (e.g., tables, histograms, scale pictographs). 5.234 support conclusions drawn from interpretation of data. 5.235 list all possible outcomes for a probability experiment involving a single event. 5.236 use probability to predict and explain the outcome of a simple experiment.

MATHEMATICS STANDARD TEN

Students will develop an understanding of PATTERNS, RELATIONSHIPS, and FUNCTIONS by solving problems in which there is a need to recognize and extend a variety of patterns; and to analyze, represent, model, and describe real-world functional relationships.

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will be able to:

- sort and classify objects by common attributes.
- recognize, analyze, create, and extend visual, symbolic, oral, and physical patterns.
- sort numbers into different classes such as evens, odds, multiples, and factors.

By the completion of **grade 5**, students will be able to:

- recognize, analyze, create, extend, and describe a wide variety of patterns.
- investigate and predict the results of combining, subdividing, and changing shapes.
- use tables, rules, variables, open sentences, and graphs to describe patterns, functions, and other relationships.
- identify patterns for explaining the concepts of computation.

The areas listed above will serve as the basis for Mathematics assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Patterns, Relationships, and Functions

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.218 recognize and reproduce simple visual, oral, and physical patterns. K.219 sort and classify objects by a single attribute.	1.229 recognize, create, and extend visual, symbolic, oral, and physical patterns. 1.230 sort and classify objects by 1 or 2 attributes.	2.238 recognize, analyze, create, and extend numeric and non-numeric patterns. 2.239 sort and classify objects by multiple attributes. 2.240 sort numbers into different classes (e.g., evens, odds).	3.238 create patterns using number relationships. 3.239 sort numbers into different classes (e.g., evens, odds, multiples, actors).	4.238 recognize, analyze, create, extend, and describe a wide variety of numeric and geometric patterns. 4.239 use tables, rules, and graphs to describe patterns and relationships.	5.237 recognize, analyze, create, extend, and describe a wide variety of numeric and geometric patterns. 5.238 use tables, rules, variables, open sentences, and graphs to describe patterns and relationships.

GLOSSARY OF TERMS

Mathematics Performance Indicators Grades K–5

A

Abstractions – mathematical concepts developed from consideration of many special cases.

Algorithm – a rule or procedure for computing or solving a certain type of problem.

Attribute – a distinct feature or property.

Autonomy – independence or self-reliance.

C

Conceptual knowledge – understanding of mathematical ideas that are abstracted through repeated experiences and reflection.

Congruent – geometric figures having the same shape, size, and measurements.

Cooperative learning – students working together in small groups to solve problems in which collaboration is helpful and useful.

Conjecture – a generalization or hypothesis made by observing data and recognizing patterns (inductive reasoning) without sufficient evidence for proof.

D

Decompose – to separate into constituent parts, i.e., 18 = 12 + 6.

Deductive (logical) reasoning – process of demonstrating that if certain statements (axioms, postulates, theorems) are accepted as true, then other statements can be shown or proved to follow from them.

E

Event – in probability, any possible realistic outcome.

Experimental (empirical) probability – a probability formulated using the results of an experiment or series of trials.

F

Flip – see reflection.

Functional relationship – a relationship that pairs each object in a given set with exactly one object in a second set (e.g., the area of a circle is a function of the radius - if the radius is 4", the area is 16π sq.").

G

Geometric transformation – process of changing the position, size, or shape of a figure according to a given rule such as rotation, translation, dilation, and reflection.

H

Histogram – a graphic picture of a frequency distribution using rectangles with class intervals as the bases and areas proportional to the frequency of that interval. The intervals include all possible values of the data; therefore there are no spaces between the bars of the graph.

Glossary of Terms

(continued)

I

Independent events – two events for which the occurrence of the one event does not affect that of the other.

Inductive reasoning – process of observing data, recognizing patterns, and making generalizations from the observations.

Integers – the numbers in the set {...,-3, -2, -1, 0, 1, 2, 3, ...}.

Integration across disciplines – teaching and assessing more than one discipline at the same time. Thinking processes are not the exclusive domain of any one discipline. Instruction that connects content areas in ways that reflect the real world.

Inverse operations – operations that undo each other; addition and subtraction are inverse operations.

K

Kinesthetically – involving movement, i.e., make the #5 with your body.

L

Line graph – a graph using points and line segments to show both amount and direction of change over a period of time.

Line plot – a graph using marks (e.g., X, ●) above a number on a number line to show the frequency of data.

M

Manipulatives – concrete models useful in representing various mathematical concepts. They are used to experiment with and explore various mathematical ideas.

M continued

Mathematical argument – a mathematical explanation that proves or disproves a hypothesis.

Mathematical knowledge – the context in which the mathematical processes are used.

Mathematical processes – procedures or actions that students engage in when doing mathematics – problem solving, reasoning, communicating and connecting and then relate the action to specific mathematical knowledge.

Mathematical tools – aids for solving problems. Students should learn how to use these tools and also when to use them. (See Appendices B & C of Volume I.)

Mathematical modeling – a process in which students represent real-world problem situations mathematically using concrete, oral, written, pictorial, graphic, numeric, and/or algebraic methods.

Measures of central tendency – the mean, median, and mode of a set of data.

N

Net – a two-dimensional template for a three-dimensional object.

Non-routine problem – a situation for which a student does not have a previously established procedure for finding a solution.

Non-standard units – items used as units of measurement (e.g., unifix cubes, paper clips, the edge of an index card, a hand span).

Glossary of Terms

(continued)

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N continued

Number sense – having well-understood number meanings; having knowledge of multiple relationships among numbers; recognizing the relative magnitudes of numbers; knowing the relative effect of operating on numbers; and developing referents for measures of common objects and situations in the environment.

O

Open sentence – a mathematical sentence (equation or inequality) that contains one or more variables.

Outlier – data values so large or small that they stand apart from the rest of the distribution.

P

Pictograph – a graph in which a symbol is used to represent a given number of items.

Portfolio – a purposeful and systematic compilation of student work used for documenting a student's developmental status and progress over time. It can serve as both an instructional and assessment tool.

Probability of an event – the ratio of the number of favorable outcomes to the number of possible outcomes of an event, if all outcomes are equally likely.

Procedural knowledge – understanding of a method for solving a problem.

Projection (orthographic or orthogonal) – two-dimensional sketch of a three-dimensional object from different perspectives (top, sides, front, back).

Q

Quantitative – relating to measuring and counting data.

Quartile – one of four equal divisions of a set of data.

R

Rational number – a real number that can be written as a quotient of two integers a/b, where b does not equal 0; a repeating or terminating decimal.

Real number – any number that is either rational or irrational.

Recompose – put together again (i.e., 12 + 6 = 18 and 11 + 7 = 18).

Reflection – replacing each point in a figure by a point symmetric with respect to a line (flipping a figure across a line).

Rotation – movement of a figure in a circular motion about a point (turning an object about a point).

S

Slide – see translation.

Solve – to find all values of a variable that make a sentence true.

Spatial reasoning – the ability to interpret and make drawings, form mental images, and visualize movement or change in those images.

Standard units – measurement units in the metric and customary measurement systems.

Strategies – methods used to solve problems.

Glossary of Terms

(continued)

S continued

Symbol sense – having a good understanding of the relationship between numbers and symbols, the representation of quantities using symbols, and how to operate with mathematical symbols.

Symmetric to a line – a figure is symmetric with respect to a line if one half of the figure is the mirror image of the other half across the line (e.g., V is symmetric to a vertical line – see reflection and flip).

Symmetric to a point – a figure is symmetric with respect to a point if you can rotate the figure about the point 180° and the new image coincides with the original figure (e.g., Z is symmetric to the midpoint of the diagonal segment – see rotation and turn).

T

Tessellation – a repetitive pattern of congruent figures that fit together with no overlaps or gaps.

Theoretical (a priori) probability – a probability formulated using prior or intuitive knowledge of the sample space before an experiment is performed.

T continued

Translation – changing the coordinates of points to coordinates referred to new axes parallel to the old (sliding a figure from one location to another).

Tree diagram – a branching diagram used to show all the possible outcomes in an experiment.

Turn – see rotation.

V

Validate – substantiate or confirm.

Verify – to prove the truth of or justify.

W

Whole numbers – the numbers in the set {0, 1, 2, 3, ...}.

TOPICAL PATHWAYS
K–5 Science

K	Using the Senses to Observe Properties of Living and Non-Living Things			
1	Weather Patterns and Their Influence on Living Things		Requirements for Living Things to Survive in Their Habitats	Comparing and Testing the Physical Properties of Solid and Liquid Forms of Materials
2	Healthy Growth and Development of Humans	Explaining How the Properties of Soils Affect Living Things	Life Cycles of Living Things	Accounting for Why Objects Move and Balance
3	Earth, Moon, and Sun: Patterns of Movement in the Sky	Earth: A Rock Planet	The Human Body: How Form Relates to Function	Acquiring Evidence of How Materials Respond to Change
4	Using Models to Explain the Solar System	Examining the Rate at which Forces Change the Earth	Relating the Structures of Living Things to Their Function	Using Electricity in Everyday Life
5	Explaining How Forces Produce Changes in the Motion and Speed of Objects	Interactions Between Living Things and Their Environment	Mixtures and Solutions: Combining and Separating Substances	The Human Body and Healthy Living

SCIENCE STANDARD ONE

Nature and Application of Science and Technology

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Science as Inquiry

- scientists' curiosity about the natural world leads them to ask questions about how things work. In order to answer these questions, scientists observe and explore things carefully.
- scientists sometimes observe the same object or event and describe it differently. It is important for scientists to describe things as accurately as possible in order to compare their observations.
- scientists use a variety of instruments, some of them quite simple, in order to obtain additional information for answering questions about the natural world.
- graphs and charts are used to better visualize the results of observation and measurement, and are an important part of describing what counts as suitable evidence in answering questions.

Science, Technology, and Society

- people have always invented new ways to solve problems and get work done. These new inventions affect all aspects of life.

History and Context of Science

- people from all parts of the world have practiced science and have made many important scientific contributions.
- many men and women have chosen science as a career and a life-time activity because of their intense interest in better understanding nature and the great joy this pursuit brings them.

By the completion of **grade 5**, students will know that:

Science as Inquiry

- curiosity about nature and the world around us leads scientists to ask questions in a way that requires scientific investigation in order to develop an explanation. The breadth and style of this investigation depend on the questions asked.
- in science, answering certain questions requires observation and simple testing to generate additional information and enable a more complete investigation.
- the ability to observe and gather data is enhanced by using a variety of instruments.
- collaboration, communication, and comparison are important parts of science. Graphs, charts, maps, equations, and oral and written reports can be used to share the results of a scientific investigation and facilitate discussion about it.

Science, Technology, and Society

- science consists of many disciplines such as chemistry, biology, geology, and physics, and in the broadest sense, can be viewed as the collective efforts by people in these disciplines to organize, describe, and understand the natural world.
- technology applies knowledge to solve problems and to change the world to suit us better. Technological innovation plays an important role in improving the quality of life. Such innovation involves scientific disciplines as well as other disciplines such as engineering, mathematics, medicine, and economics in order to create practical, cost-effective solutions to problems and opportunities.
- technological development improves the quality of our life immensely and continues to do so in many areas such as medicine, communications, transportation, and agriculture. However, not all development is perfect, uniformly beneficial, or equally available to everyone.

History and Context of Science

- men and women of all ages and from diverse cultures are involved in a multitude of scientific endeavors in the search to better understand nature. These people practice science in many ways and at various depths and levels of complexity. This search continues to add new knowledge to society's understanding of the world.

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten

Students will be able to:

Topic: Using the Senses to Observe Living and Non-Living Things

K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things.

K.311 observe and describe changes in the physical properties of objects (wood – saw dust, candy bar left in the sun) that take place when they are exposed to a variety of treatments (temperature, sunlight, water).

Grade One

Topic: Requirements for Living Things to Survive in Their Habitats

Students will be able to:

1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or system.

1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things.

1.310 observe a variety of living organisms (plants and animals) and identify basic needs common to the organisms such as food, water, air, shelter, etc.

1.313 select the hand lens as an appropriate instrument for observing greater detail of organisms.

Grade Two

Topic: Explaining How the Properties of Soils Affect Living Things

Students will be able to:

2.308 conduct simple tests to identify the three basic components of soil and to compare and contrast the unique properties of each of the components.

2.309 select and use appropriate instruments (e.g., hand lens/magnifier, droppers, funnels, filter paper, sieves) to analyze soil samples.

2.310 interpret test results and draw conclusions about soil composition.

2.311 record and organize the results of soil tests and explain these results through writing, drawing, and discussion.

2.312 reflect on the test results and predict how plants will grow in different soils.

Grade Three

Topic: Human Body: How Form Relates to Function

Students will be able to:

3.316 conduct simple investigations to determine and explain how different body parts respond to different kinds of visual, auditory, and tactile stimuli.

Grade Four

Topic: Examining the Rate at which Forces Change Earth

Students will be able to:

4.314 conduct simple investigations to determine how different types of soil (sand, clay, humus) affect plant growth and develop and use the results of the investigation to support an individual's choice to fertilize, irrigate a parcel of land, etc.

4.315 select a current or past issue that has been discussed in the media such as the building of Delaware Route 1, damming of various rivers, replenishing coastal beaches, expanding urban development to determine how human activity affects the interaction between land and water.

Grade Five

Topic: The Human Body and Healthy Living

Students will be able to:

5.333 analyze and describe how science and technology have contributed to healthy living.

5.334 identify local community agencies that advocate for healthy individuals, families, and communities.

Topic: Interactions Between Living Things and Their Environment

Students will be able to:

5.310 recognize that models that simulate an ecosystem can be used to learn about the complex relationships that exist within ecosystems throughout the world.

5.312 use appropriate equipment such as hand lens, pH paper, and measuring devices to conduct, record, and analyze long-term daily observations of a natural or simulated ecosystem.

PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten

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Topic: Requirements for Living Things to Survive in Their Habitats

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Topic: Explaining How the Properties of Soils Affect Living Things

Students will be able to:

2.308 conduct simple tests to identify the three basic components of soil and to compare and contrast the unique properties of each of the components.

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Grade Three

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Grade Four

Topic: Examining the Rate at which Forces Change Earth

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten

Topic: Using the Senses to Observe Living and Non-Living Things

Students will be able to:

K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight.

K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things

K.308 construct simple class graphs (e.g., pictographs, physical graphs) to organize information (e.g., odors, tastes, textures) collected through the use of senses.

K.309 observe and describe the simple graphs constructed by the class in order to explain the information contained in the graph.

Grade One

Topic: Comparing and Testing the Physical Properties of Solid and Liquid Forms of Materials

Students will be able to:

1.319 compare and describe similarities and differences in physical properties of an assortment of liquids.

1.320 construct individual and class Venn diagrams to compare the similarities and differences between the properties of solids and liquids.

1.321 observe and describe changes in the physical properties of solids and liquids after exposure to a variety of treatments (temperature, sunlight, and sanding).

1.322 use writing, drawing, and discussion to communicate observations, descriptions, investigations, and experiences concerning solids and liquids.

Grade Two

Topic: Healthy Growth and Development of Humans

Students will be able to:

2.301 use simple devices such as watches, thermometers, stethoscopes, scales, and measuring tapes to collect, record, and graph personal health data and to discuss individual, group, or class trends or patterns.

2.303 identify technologies (e.g., refrigerator, cooler, vacuum packaging, plastic wrap) which are used to keep foods fresh and explain why spoiled foods are dangerous to the health and well being of humans.

Grade Three

Topic: Earth: A Rock Planet

Students will be able to:

3.305 observe a variety of Earth's materials such as rocks, sand, and soil and sort the materials into groups based on similar physical properties.

3.306 examine an assortment of rocks and use appropriate measuring tools (balances, meter tapes, syringes) to gather data about the rocks' physical properties (length, circumference, weight).

3.309 sort and group an assortment of minerals based on similarities and differences in their physical properties.

Grade Four

Topic: Examining the Rate at which Forces Change Earth

Students will be able to:

4.311 use stream tables (e.g., inclined tray) to model natural processes and to determine the effects of slope, flow, and land formation caused by erosion and deposition.

4.312 select and use a variety of appropriate instruments for collecting, recording, and analyzing data obtained from stream table investigations.

4.313 communicate the results of stream table investigations through record sheets, oral and written observations, and drawings.

Grade Five

Topic: Mixtures and Solutions: Combining and Separating Substances

Students will be able to:

5.322 measure volumes of solids and liquids to make solutions that differ either in the amount of solid material or in the amount of water.

5.323 measure accurately the amount of solids and liquids needed to prepare a variety of mixtures and solutions and compare the weight of the mixtures and solutions to the weight of their parts.

5.324 prepare aqueous solutions with different component concentrations and observe and record changes in properties of these mixtures (e.g., color, transparency, feel) as the relative amount of the component substance changes.

SCIENCE STANDARD ONE

Nature and Application of Science and Technology

END OF CLUSTER EXPECTATIONS

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Science, Technology, and Society

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History and Context of Science

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By the completion of grade 5, students will know that:

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Students will be able to: **Topic: Using the Senses to Observe Living and Non-Living Things** K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things. K.311 observe and describe changes in the physical properties of objects (wood – saw dust, candy bar left in the sun) that take place when they are exposed to a variety of treatments (temperature, sunlight, water).	**Topic: Requirements for Living Things to Survive in Their Habitats** **Students will be able to:** 1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or system. 1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things. 1.310 observe a variety of living organisms (plants and animals) and identify basic needs common to the organisms such as food, water, air, shelter, etc. 1.313 select the hand lens as an appropriate instrument for observing greater detail of organisms.	**Topic: Explaining How the Properties of Soils Affect Living Things** **Students will be able to:** 2.308 conduct simple tests to identify the three basic components of soil and to compare and contrast the unique properties of each of the components. 2.309 select and use appropriate instruments (e.g., hand lens/magnifier, droppers, funnels, filter paper, sieves) to analyze soil samples. 2.310 interpret test results and draw conclusions about soil composition. 2.311 record and organize the results of soil tests and explain these results through writing, drawing, and discussion. 2.312 reflect on the test results and predict how plants will grow in different soils.	**Topic: Human Body: How Form Relates to Function** **Students will be able to:** 3.316 conduct simple investigations to determine and explain how different body parts respond to different kinds of visual, auditory, and tactile stimuli.	**Topic: Examining the Rate at which Forces Change Earth** **Students will be able to:** 4.314 conduct simple investigations to determine how different types of soil (sand, clay, humus) affect plant growth and develop and use the results of the investigation to support an individual's choice to fertilize, irrigate a parcel of land, etc. 4.315 select a current or past issue that has been discussed in the media such as the building of Delaware Route 1, damming of various rivers, replenishing coastal beaches, expanding urban development to determine how human activity affects the interaction between land and water.	**Topic: The Human Body and Healthy Living** **Students will be able to:** 5.333 analyze and describe how science and technology have contributed to healthy living. 5.334 identify local community agencies that advocate for healthy individuals, families, and communities. **Topic: Interactions Between Living Things and Their Environment** **Students will be able to:** 5.310 recognize that models that simulate an ecosystem can be used to learn about the complex relationships that exist within ecosystems throughout the world. 5.312 use appropriate equipment such as hand lens, pH paper, and measuring devices to conduct, record, and analyze long-term daily observations of a natural or simulated ecosystem.

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Topic: Requirements for Living Things to Survive in Their Habitats **Students will be able to:** 1.314 sort and group plants and animals based on their physical properties or behavioral characteristics. **Topic: Weather Patterns and Their Influence on Living Things** **Students will be able to:** 1.301 keep daily records of temperature and weather conditions and use these records to identify patterns over short and long periods of time. 1.302 organize weather data on graphs and on long-term data collection charts. 1.303 interpret and summarize long-term weather data.	**Topic: Explaining How the Properties of Soils Affect Living Things** **Students will be able to:** 2.313 explain how composting is an effective method to recycle plants and other discarded organic matter. **Topic: Life Cycles of Living Things** **Students will be able to:** 2.314 observe the life cycle of a selected organism (e.g., plant, butterfly, frog, etc.) and recognize that the phases of the life cycle are predictable and describable. 2.315 maintain a record of an organism's growth and change over time and identify both the basic and specific survival needs of this organism. 2.316 identify and describe specific features of an organism that help it survive in its environment.	**Topic: Acquiring Evidence of How Materials Respond to Change** **Students will be able to:** 3.318 observe and describe the physical properties of a variety of materials in order to construct classification systems which sort and group these materials. 3.321 observe and describe changes in the properties of a material as the material changes from one state to another. 3.323 conduct simple tests to determine how a variety of common materials can be identified by their interaction with substances such as water, vinegar, iodine, red cabbage, etc.	**Topic: Using Models to Explain the Solar System** **Students will be able to:** 4.301 design and construct simple models to demonstrate how the Earth's movement and position alter the visibility of constellations. 4.302 observe and record the apparent path of the Sun and chart the times and directions of sunrise and sunset over an extended period of time. 4.304 analyze NASA photographs and satellite images of the Earth, Moon, and other planets and identify similar and dissimilar features.	**Topic: Interactions Between Living Things and Their Environment** **Students will be able to:** 5.318 conduct simple investigations to determine the effects different conditions, factors, or pollutants (e.g., pH of water, road salt, fertilizer run off) could possibly have on an ecosystem. 5.320 use evidence obtained from experiments to inform those ecosystem decisions that may be expressed in writings, drawings, discussions, or presentations.

SCIENCE STANDARD ONE

Nature and Application of Science and Technology

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Science as Inquiry

- scientists' curiosity about the natural world leads them to ask questions about how things work. In order to answer these questions, scientists observe and explore things carefully.
- scientists sometimes observe the same object or event and describe it differently. It is important for scientists to describe things as accurately as possible in order to compare their observations.
- scientists use a variety of instruments, some of them quite simple, in order to obtain additional information for answering questions about the natural world.
- graphs and charts are used to better visualize the results of observation and measurement, and are an important part of describing what counts as suitable evidence in answering questions.

Science, Technology, and Society

- people have always invented new ways to solve problems and get work done. These new inventions affect all aspects of life.

History and Context of Science

- people from all parts of the world have practiced science and have made many important scientific contributions.
- many men and women have chosen science as a career and a life-time activity because of their intense interest in better understanding nature and the great joy this pursuit brings them.

By the completion of **grade 5**, students will know that:

Science as Inquiry

- curiosity about nature and the world around us leads scientists to ask questions in a way that requires scientific investigation in order to develop an explanation. The breadth and style of this investigation depend on the questions asked.
- in science, answering certain questions requires observation and simple testing to generate additional information and enable a more complete investigation.
- the ability to observe and gather data is enhanced by using a variety of instruments.
- collaboration, communication, and comparison are important parts of science. Graphs, charts, maps, equations, and oral and written reports can be used to share the results of a scientific investigation and facilitate discussion about it.

Science, Technology, and Society

- science consists of many disciplines such as chemistry, biology, geology, and physics, and in the broadest sense, can be viewed as the collective efforts by people in these disciplines to organize, describe, and understand the natural world.
- technology applies knowledge to solve problems and to change the world to suit us better. Technological innovation plays an important role in improving the quality of life. Such innovation involves scientific disciplines as well as other disciplines such as engineering, mathematics, medicine, and economics in order to create practical, cost-effective solutions to problems and opportunities.
- technological development improves the quality of our life immensely and continues to do so in many areas such as medicine, communications, transportation, and agriculture. However, not all development is perfect, uniformly beneficial, or equally available to everyone.

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Topic: Weather Patterns and Their Influence on Living Things **Students will be able to:** 1.305 select and use appropriate instruments such as wind scales (e.g., flags, pinwheels), thermometers, and rain gauges to measure different features of weather. 1.306 describe different weather conditions (e.g., sunny, foggy, rains, and seasonal patterns) and identify the impact these conditions have on plant, animal, and human activity. 1.307 recognize that meteorologists are scientists who study, observe, and record information about the weather and use this information to forecast the weather.	**Topic: Life Cycles of Living Things** **Students will be able to:** 2.317 observe parents and offspring from a selected species of organism and identify characteristics that offspring have in common with their parents and characteristics which are different from their parents. 2.318 identify evidence of changes in growth and development of an organism such as shedding of skin, increase in body size, increase in excrement, decrease in the amount of food eaten. 2.319 observe growth and change in the life cycle of an organism and relate this to change and growth in their (students) own bodies.	**Topic: Acquiring Evidence of How Materials Respond to Change** **Students will be able to:** 3.324 predict the results of simple tests conducted to identify materials and compare these predictions to the actual results. 3.325 analyze and draw conclusions from material test results and support these conclusions with reasons based on evidence. 3.326 develop lab procedures that ensure safety as well as the proper acquisition of evidence.	**Topic: Using Models to Explain the Solar System** **Students will be able to:** 4.305 use simple models to explain how light from the Sun travels in straight lines and interacts with objects in the solar system. 4.306 use simple models to explain how the Earth's position relative to the Sun determines the length of daylight.	

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Nature and Application of Science and Technology

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

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				Topic: Using Electricity in Everyday Life **Students will be able to:** 4.324 test objects for their conductivity and classify the objects based on whether they conduct electricity (conductors) or do not conduct electricity (insulators). 4.325 demonstrate a variety of ways to construct a complete circuit using the same set of materials. 4.326 apply trouble shooting strategies to complete an incomplete circuit. 4.329 describe how, when, and where electricity is generated for the local community and the sources of raw materials used to produce the community's electricity.	

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.317 observe and describe structures in living organisms (plants and animals) that enable them to reproduce, grow, and survive in their environment. 4.318 develop simple classification systems (properties of germination, territorial behavior) based on similarities and differences in the structures or behavior of living organisms. 4.319 observe, compare, and record variations within a species (e.g., crayfish, grass hoppers, bean plants, tree seedlings) and predict how the variations may affect the ability of the organism to survive. 4.321 select a living organism and develop descriptions of how the organism responds to a variety of stimuli based on multiple observations and data collection.	

SCIENCE STANDARD ONE

Nature and Application of Science and Technology

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PERFORMANCE INDICATORS

Nature and Application of Science and Technology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.322 maintain journals to record systematically the growth and development of a selected organism and compare and discuss journal entries with classmates. 4.323 develop reasonable, testable scientific questions about the life cycle of organisms (e.g., the effect of variations within species, how the structure of an organism relates to the function it performs, etc.) and plan and conduct a simple investigation to answer the questions.	

SCIENCE STANDARD TWO

Materials and Their Properties

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Properties and Structure of Materials

objects can be classified according to physical properties such as size, shape, weight, texture, color, and material composition such as wood, metal, plastic, or cloth. These properties can be observed and measured using tools such as rulers, balances, magnifiers, and thermometers.

materials exist in one of three states - solid, liquid, or gas - and can be changed from one state of matter to another. Each state has distinct physical properties. Physical properties and changes from one state of matter to another state are strongly influenced by heating and cooling.

objects and materials may be composed of structures too small to be seen without the use of a tool such as a magnifier.

Changes in Materials

physical properties of materials can be changed by exposure to heat, light, pressure, and chemicals or by cutting, mixing, and grinding. Not all materials respond the same way to these treatments.

Mixtures

physical mixtures such as trail mix, tossed salad, and iron filings/sand, are composed of different kinds of materials, each having distinct physical properties. Physical property differences can often be used to separate, sort, and group the materials of a mixture.

Material Technology

the properties of a material or an object influence how the material or object is used. Some materials are more suitable than others for making a particular product or device.

technology has created and introduced new materials to help people solve problems. In some cases a new material may solve one problem, but create another one.

By the completion of **grade 5**, students will know that:

Properties and Structure of Materials

observable and measurable properties of materials such as solubility, transparency, magnetic characteristics, strength, and the ability to conduct heat and electricity can be used to identify, group, and classify materials.

the ability to define structure in detail is limited when objects or materials are studied with the naked eye. The observation and determination of more detailed structure require magnification.

Changes in Materials

the weight of an object remains unchanged when broken into parts, and the parts together weigh the same as the original object.

the properties of materials and objects can be changed by interaction with air, moisture, light, heat, and other substances or materials. The structure of materials and objects strongly influences behavior during such interactions.

Mixtures

most things we deal with everyday are mixtures of component substances. The properties of these mixtures largely depend on the relative amounts and properties of the components. Mixtures can consist of different solid materials or be solutions such as salt or sugar in water.

Material Technology

through science and technology, new materials are created whose function and performance have advantages over natural materials and lead to benefits for society.

the creation of new synthetic materials has challenged individuals and industry to consider both the benefits and the risks in the use of these materials. One current example is the effort to find better ways to discard and recycle different materials.

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PERFORMANCE INDICATORS
Materials and Their Properties

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things **Students will be able to:** K.301 observe and describe the properties of a variety of living and non-living things using the 5 senses. K.303 use the physical properties of living and non-living things (e.g., prickliness, slickness, stretchiness, and squishiness) to describe their similarities and differences. K.304 sort, group, and regroup a variety of familiar living and non-living things based on their physical properties (e.g., shape, color, texture, taste, size, etc.) K.305 identify the hand lens (magnifier) as an appropriate instrument for observing and discussing living and non-living things in greater detail.	**Topic: Comparing and Testing the Physical Properties of Solid and Liquid Forms of Materials** **Students will be able to:** 1.315 conduct simple investigations to identify the physical properties of solids and liquids, and record the results on charts, diagrams, graphs, drawings, etc. (e.g., ability to sink or float, dissolve in water, roll or stack) 1.316 sort and group solids based on physical properties such as color, shape, ability to roll or stack, hardness, magnetic attraction, or whether they sink or float in water. 1.317 compare and describe similarities and differences in physical properties of an assortment of solid objects. 1.318 sort and group liquids based on physical properties such as color; odor; tendency to flow; and whether they sink, float, or dissolve in water.	**Topic: Accounting for Why Objects Move and Balance** **Students will be able to:** 2.320 use an equal arm balance to weigh and compare a variety of objects and recognize that weighing is the process of balancing an object against a certain number of standard units. 2.321 predict the serial order for the weights of a variety of objects and test these predictions by weighing the objects. **Topic: Explaining How the Properties of Soils Affect Living Things** **Students will be able to:** 2.308 conduct simple tests to identify the three basic components of soil and to compare and contrast the unique properties of each of the components.	**Topic: Earth: A Rock Planet** **Students will be able to:** 3.305 observe a variety of Earth's materials such as rocks, sand, and soil and sort the materials into groups based on similar physical properties. 3.306 examine an assortment of rocks and use appropriate measuring tools (balances, meter tapes, syringes) to gather data about the rocks' physical properties (length, circumference, weight). 3.307 examine rocks in order to identify their composition and to recognize that they are made up of more than one component. 3.310 order or serrate a group of minerals based on such physical properties as hardness, color, and luster.	**Topic: Examining the Rate at which Forces Change Earth** **Students will be able to:** 4.307 analyze materials that make up land and describe these materials on the basis of their properties. 4.308 sort and classify samples of Earth materials according to physical properties such as color, luster, weight relative to size, particle size, and hardness.	**Topic: Explaining How Forces Produce Changes in Motion and Speed of Objects** **Students will be able to:** 5.306 explain how varying the conditions upon which an object moves (flat surface → inclined plane, smooth surface → rough surface), changes the speed of the object. **Topic: Mixtures and Solutions: Combining and Separating Substances** **Students will be able to:** 5.321 recognize that most things we deal with everyday are mixtures of component substances and that mixtures can consist of different solid materials or be solutions such as salt or sugar in water.

SCIENCE STANDARD TWO

Materials and Their Properties

END OF CLUSTER EXPECTATIONS

By the completion of grade 3, students will know that:

Properties and Structure of Materials

objects can be classified according to physical properties such as size, shape, weight, texture, color, and material composition such as wood, metal, plastic, or cloth. These properties can be observed and measured using tools such as rulers, balances, magnifiers, and thermometers.

materials exist in one of three states - solid, liquid, or gas - and can be changed from one state of matter to another. Each state has distinct physical properties. Physical properties and changes from one state of matter to another state are strongly influenced by heating and cooling.

objects and materials may be composed of structures too small to be seen without the use of a tool such as a magnifier.

Changes in Materials

physical properties of materials can be changed by exposure to heat, light, pressure, and chemicals or by cutting, mixing, and grinding. Not all materials respond the same way to these treatments.

Mixtures

physical mixtures such as trail mix, tossed salad, and iron filings/sand, are composed of different kinds of materials, each having distinct physical properties. Physical property differences can often be used to separate, sort, and group the materials of a mixture.

Material Technology

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Changes in Materials

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PERFORMANCE INDICATORS

Materials and Their Properties

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Topic: Using the Senses to Observe Living and Non-Living Things **Students will be able to:** K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight. K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things K.308 construct simple class graphs (e.g., pictographs, physical graphs) to organize information (e.g., odors, tastes, textures) collected through the use of senses. K.309 observe and describe the simple graphs constructed by the class in order to explain the information contained in the graph.	**Topic: Comparing and Testing the Physical Properties of Solid and Liquid Forms of Materials** **Students will be able to:** 1.319 compare and describe similarities and differences in physical properties of an assortment of liquids. 1.320 construct individual and class Venn diagrams to compare the similarities and differences between the properties of solids and liquids. 1.321 observe and describe changes in the physical properties of solids and liquids after exposure to a variety of treatments (temperature, sunlight, and sanding). 1.322 use writing, drawing, and discussion to communicate observations, descriptions, investigations, and experiences concerning solids and liquids.	**Topic: Explaining How the Properties of Soils Affect Living Things** **Students will be able to:** 2.309 select and use appropriate instruments (e.g., hand lens/magnifier, droppers, funnels, filter paper, sieves) to analyze soil samples.	**Topic: Acquiring Evidence of How Materials Respond to Change** **Students will be able to:** 3.318 observe and describe a variety of materials in order to construct classification systems which sort and group these materials. 3.319 identify changes that materials undergo (form, color, texture) when exposed to various treatments such as heating, grinding, and mixing with other materials, or when the materials are separated into their component parts. 3.320 explain why the total amount of a material remains the same even when exposed to a variety of physical treatments (e.g., flattening or balling up clay, breaking apart a candy bar, pouring liquid into a tall, slender glass vs. a short, fat glass). 3.321 observe and describe changes in the properties of a material as the material changes from one state to another.	**Topic: Using Models to Explain the Solar System** **Students will be able to:** 4.304 analyze NASA photographs and satellite images of the Earth, Moon, and other planets and identify similar and dissimilar features. **Topic: Using Electricity in Everyday Life** **Students will be able to:** 4.324 test objects for their conductivity and classify the objects based on whether they conduct electricity (conductors) or do not conduct electricity (insulators).	**Topic: Mixtures and Solutions: Combining and Separating Substances** **Students will be able to:** 5.322 measure volumes of solids and liquids to make solutions that differ either in the amount of solid material or in the amount of water. 5.323 measure accurately the amount of solids and liquids needed to prepare a variety of mixtures and solutions and compare the weight of the mixtures and solutions to the weight of their parts. 5.324 prepare aqueous solutions with different component concentrations and observe and record changes in properties of these mixtures (e.g., color, transparency, feel) as the relative amount of the component substance changes. 5.326 determine the quantities of two different materials (e.g., salt and sugar) required to saturate equal volumes of water and compare the results.

SCIENCE STANDARD TWO

Materials and Their Properties

END OF CLUSTER EXPECTATIONS

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PERFORMANCE INDICATORS

Materials and Their Properties

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Topic: Using the Senses to Observe Living and Non-Living Things	**Topic: Requirements for Living Things to Survive in Their Habitats**		**Topic: Acquiring Evidence of How Materials Respond to Change**		**Topic: Mixtures and Solutions: Combining and Separating Substances**
Students will be able to:	**Students will be able to:**		**Students will be able to:**		**Students will be able to:**
K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things. K.311 observe and describe changes in the physical properties of objects (wood – saw dust, candy bar left in the sun) that take place when they are exposed to a variety of treatments (temperature, sunlight, water).	1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or systems. 1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things. 1.313 select the hand lens as an appropriate instrument for observing greater detail of organisms. 1.314 sort and group plants and animals based on their physical properties or behavioral characteristics.		3.322 recognize that mixtures are composed of different kinds of materials each having distinct properties and determine appropriate procedures to separate the mixtures into their component parts. 3.323 conduct simple tests to determine how a variety of common materials can be identified by their interaction with substances such as water, vinegar, iodine, red cabbage, etc. 3.324 predict the results of simple tests conducted to identify materials and compare these predictions to the actual results. 3.325 analyze and draw conclusions from material test results and support these conclusions with reasons based on evidence. 3.326 develop lab procedures that ensure safety as well as the proper acquisition of evidence.		5.327 compare the physical properties of precipitates to determine their identities.

SCIENCE STANDARD THREE

Energy and Its Effects

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Forms/Sources of Energy

the Sun is the source of heat and light that warms the earth.

sound is produced when objects vibrate. Various characteristics of sound such as loudness/softness and high pitch/low pitch can be changed by altering the material producing the sound.

force is any push or pull exerted by one body on another. Pushes and/or pulls change the position, motion, direction (and occasionally the shape) of an object. The greater the push or pull, the greater the change in position, motion, and direction.

moving objects can exhibit different kinds of motion such as fast, slow, straight, back and forth, circular, and zigzag. The application of pushes or pulls is required to produce any change in the type of motion, including stopping and starting an object in motion.

some forces (e.g., magnetism, static electricity) can make things move without touching them.

Transformation/Conservation of Energy

There are no content standards at this grade cluster.

Production/Consumption/Application of Energy

people burn fuels such as wood, oil, coal, or natural gas or use electricity to cook their food and warm their homes.

the production of heat, light, and electricity uses natural resources, therefore, careful attention should be paid to turning off machines and lights when not in use.

heat, light, electricity, or any form of energy can be harmful or even dangerous if misused. Household electricity can stun or kill a person; sunlight can cause painful sunburn; loud sounds can cause hearing loss or even deafness; microwaves interacting with metal objects can cause sparking.

By the completion of **grade 5**, students will know that:

Forms/Sources of Energy

light is a form of energy which is visible to the eye, spreads from a source, and travels in straight lines. Light is transmitted, reflected, refracted, or absorbed by different materials. Materials which do not transmit light cast shadows.

like the Sun, many other objects which give off light also produce heat. Heat can also be produced by electrical and mechanical machines and by one object rubbing against another.

electricity in circuits can produce light, heat, sound, and magnetic effects. Electrical circuits require a complete loop through which the electrical current can pass. (Natural Science Education Standards, Nov. 1994)

when an object is set in motion by a force, its position is defined with reference to the distance it travels and the period of time it takes to travel that distance. Speed is the measure of the distance traveled by a moving object in a given period of time (distance divided by time).

force must be applied to change the speed or direction of a moving object. The greater the force, the greater the change in motion.

Transformation/Conservation of Energy

most of the energy reaching the Earth's surface comes from the Sun as light. It is then stored, transferred, or transformed in a variety of ways. Some of the Sun's light is transformed into heat when it hits objects.

when warmer things are put with cooler ones, the warm ones lose heat and the cool ones gain it until they are all at the same temperature.

an important property of materials is their ability to conduct and transfer heat. Some materials such as certain metals are excellent conductors of heat while other materials such as glass are good insulators. Insulators are used to conserve heat and reduce the cost of heating and cooling homes.

Production/Consumption/Application of Energy

society uses energy to perform work and improve the quality of life. The attractiveness and extent of use of the various sources of energy depend on factors such as availability, cost, and the ability to control side effects such as pollution and radiation.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Energy and Its Effects

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
		Topic: Accounting for Why Objects Move and Balance **Students will be able to:** 2.320 use an equal arm balance to weigh and compare a variety of objects and recognize that weighing is the process of balancing an object against a certain number of standard units. 2.321 predict the serial order for the weights of a variety of objects, and test these predictions by weighing the objects. 2.322 investigate and identify factors that affect balance such as the amount of weight, position of the weight, and position of the fulcrum. 2.323 present data about the weight of objects on record sheets, bar graphs, line plots, data tables, or Venn diagrams.		**Topic: Using Models to Explain the Solar System** **Students will be able to:** 4.305 use simple models to explain how light from the Sun travels in straight lines and interacts with objects in the solar system. **Topic: Using Electricity in Everyday Life** **Students will be able to:** 4.324 test objects for their conductivity and classify the objects based on whether they conduct electricity (conductors) or do not conduct electricity (insulators).	**Topic: Explaining How Forces Produce Changes in Motion and Speed of Objects** **Students will be able to:** 5.301 demonstrate that speed is the measure of the distance traveled by a moving object in a given period of time (distance divided by time). 5.302 use rulers, meter sticks, tapes, and watches to measure the distance objects travel in a given period of time; organize the measurements in tables; and construct graphs based on the measurements. 5.303 determine whether an object is moving slowly, quickly, or is stopped by collecting and recording data on the distance an object travels in regular time intervals, or how much time it takes for an object to travel a certain distance.

SCIENCE STANDARD THREE

Energy and Its Effects

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Forms/Sources of Energy

the Sun is the source of heat and light that warms the earth.

sound is produced when objects vibrate. Various characteristics of sound such as loudness/softness and high pitch/low pitch can be changed by altering the material producing the sound.

force is any push or pull exerted by one body on another. Pushes and/or pulls change the position, motion, direction (and occasionally the shape) of an object. The greater the push or pull, the greater the change in position, motion, and direction.

moving objects can exhibit different kinds of motion such as fast, slow, straight, back and forth, circular, and zigzag. The application of pushes or pulls is required to produce any change in the type of motion, including stopping and starting an object in motion.

some forces (e.g., magnetism, static electricity) can make things move without touching them.

Transformation/Conservation of Energy

There are no content standards at this grade cluster.

Production/Consumption/Application of Energy

people burn fuels such as wood, oil, coal, or natural gas or use electricity to cook their food and warm their homes.

the production of heat, light, and electricity uses natural resources, therefore, careful attention should be paid to turning off machines and lights when not in use.

heat, light, electricity, or any form of energy can be harmful or even dangerous if misused. Household electricity can stun or kill a person; sunlight can cause painful sunburn; loud sounds can cause hearing loss or even deafness; microwaves interacting with metal objects can cause sparking.

By the completion of **grade 5**, students will know that:

Forms/Sources of Energy

light is a form of energy which is visible to the eye, spreads from a source, and travels in straight lines. Light is transmitted, reflected, refracted, or absorbed by different materials. Materials which do not transmit light cast shadows.

like the Sun, many other objects which give off light also produce heat. Heat can also be produced by electrical and mechanical machines and by one object rubbing against another.

electricity in circuits can produce light, heat, sound, and magnetic effects. Electrical circuits require a complete loop through which the electrical current can pass. (Natural Science Education Standards, Nov. 1994)

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force must be applied to change the speed or direction of a moving object. The greater the force, the greater the change in motion.

Transformation/Conservation of Energy

most of the energy reaching the Earth's surface comes from the Sun as light. It is then stored, transferred, or transformed in a variety of ways. Some of the Sun's light is transformed into heat when it hits objects.

when warmer things are put with cooler ones, the warm ones lose heat and the cool ones gain it until they are all at the same temperature.

an important property of materials is their ability to conduct and transfer heat. Some materials such as certain metals are excellent conductors of heat while other materials such as glass are good insulators. Insulators are used to conserve heat and reduce the cost of heating and cooling homes.

Production/Consumption/Application of Energy

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PERFORMANCE INDICATORS
Energy and Its Effects

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
		Topic: Accounting for Why Objects Move and Balance **Students will be able to:** 2.324 communicate ideas, observations, and experiences about balancing and weighing through writing, drawing, and discussion. 2.325 demonstrate how pushes or pulls (forces) can change the position, motion, and direction of an object. Explain how the greater the push or pull, the greater the change in position, motion, and direction of an object. 2.326 recognize that objects can exhibit different kinds of motion such as fast, slow, straight, back and forth, circular, and zigzag and identify the different ways in which a variety of objects (birds, fans, bicycles, baseballs, etc.) move or can be made to move. 2.327 recognize that some forces (e.g., magnetism and static electricity) can make objects move without touching them.		**Topic: Using Electricity in Everyday Life** **Students will be able to:** 4.325 demonstrate a variety of ways to construct a complete circuit using the same set of materials. 4.327 observe diagrams or pictures of a variety of circuits and demonstrate how the switch can be used to complete or interrupt a circuit. 4.329 describe how, when, and where electricity is generated for the local community and the sources of raw materials used to produce the community's electricity. 4.330 recognize the need for safety rules when working with electricity and identify specific precautions that should be taken to avoid injury when using electric appliances or gadgets.	**Topic: Explaining How Forces Produce Changes in Motion and Speed of Objects** **Students will be able to:** 5.304 demonstrate and explain how the force exerted upon an object can change the object's motion and speed. 5.305 predict, measure, and compare how the speed and motion of an object is influenced by the object's mass, structural design, and material composition. 5.306 explain how varying the conditions upon which an object moves (flat surface → inclined plane, smooth surface → rough surface) changes the speed of the object. 5.307 recognize magnetism as a force that moves objects and identify the physical properties of objects that would be affected by magnets. 5.309 develop appropriate vocabulary to describe the relationship among distance, time, and speed.

SCIENCE STANDARD THREE

Energy and Its Effects

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Forms/Sources of Energy

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sound is produced when objects vibrate. Various characteristics of sound such as loudness/softness and high pitch/low pitch can be changed by altering the material producing the sound.

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Transformation/Conservation of Energy

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Production/Consumption/Application of Energy

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PERFORMANCE INDICATORS

Energy and Its Effects

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
					Topic: Interactions Between Living Things and Their Environment. **Students will be able to:** 5.313 trace the flow of matter and energy through an ecosystem by constructing simple diagrams (food chains or a web of food chains) that include the Sun, producers, consumers, and decomposers. 5.314 categorize the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers.

SCIENCE STANDARD FOUR

Earth in Space

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Solar System Models

there are many objects in the solar system including the Sun, Moon, planets, and comets. Most of the objects are separated by vast space and enormous distances.

the size of an object appears to change as the observer moves closer to or farther away from the object.

Interactions in the Solar System

every 24 hours the Earth makes a full rotation on its axis which causes the day and night cycle.

there are many objects in the sky such as the Sun, Moon, stars, clouds, birds, and airplanes. The patterns of movement of some of these objects such as the Sun, Moon, and stars are cyclic.

Technology and Applications

people who live and work in space need special clothing and equipment. Astronauts wear space suits, which are designed and constructed by Delaware scientists, to protect themselves from the extreme conditions of space.

By the completion of **grade 5**, students will know that:

Solar System Models

Earth's position relative to the Sun affects conditions on Earth. Earth's rotation on a tilted axis and its revolution around the Sun cause variations in the amount of solar energy hitting Earth's surface and such variations cause seasons.

Interactions in the Solar System

the Earth is one of several planets that orbit the Sun. As the Earth orbits the Sun, different patterns of stars can be seen in different seasons.

rotation of Earth on its axis once every 24 hours causes day and night and makes the Sun, Moon, planets, and stars appear to move across the sky from east to west each day.

Technology and Applications

technology allows scientists to explore the Solar System and to observe and measure features and structures of the Earth, Moon, and other solar objects.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Earth in Space

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
	Topic: Weather Patterns and Their Influence on Living Things **Students will be able to:** 1.301 keep daily records of temperature and weather conditions and use these records to identify patterns over short and long periods of time.		**Topic: Earth, Moon, and Sun: Patterns of Movement in the Sky** **Students will be able to:** 3.301 construct and use simple solar system models to demonstrate and explain that the Sun, Moon, and planets are separated by a vast space and enormous distance. 3.302 describe the Earth's 24-hour day/night rotation using simple models. 3.303 observe the day and night sky for at least a one-month period of time and identify those objects such as the Sun, Moon, and stars whose patterns of movement are cyclic. 3.304 identify and explain how the inventions and contributions of Delaware scientists and businesses have contributed to the success of the Nation's space program.	**Topic: Using Models to Explain the Solar System** **Students will be able to:** 4.301 design and construct simple models to demonstrate how the Earth's movement and position alter the visibility of constellations. 4.302 observe and record the apparent path of the Sun and chart the times and directions of sunrise and sunset over an extended period of time. 4.303 demonstrate through the use of simple models why the Sun, Moon, and stars appear to move across the sky from east to west each day.	

SCIENCE STANDARD FOUR

Earth in Space

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Solar System Models

there are many objects in the solar system including the Sun, Moon, planets, and comets. Most of the objects are separated by vast space and enormous distances.

the size of an object appears to change as the observer moves closer to or farther away from the object.

Interactions in the Solar System

every 24 hours the Earth makes a full rotation on its axis which causes the day and night cycle.

there are many objects in the sky such as the Sun, Moon, stars, clouds, birds, and airplanes. The patterns of movement of some of these objects such as the Sun, Moon, and stars are cyclic.

Technology and Applications

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Solar System Models

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Interactions in the Solar System

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Technology and Applications

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The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Earth in Space

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Using Models to Explain the Solar System **Students will be able to:** 4.304 analyze NASA photographs and satellite images of the Earth, Moon, and other planets and identify similar and dissimilar features. 4.305 use simple models to explain how light from the Sun travels in straight lines and interacts with objects in the solar system. 4.306 use simple models to explain how the Earth's position relative to the Sun determines the length of daylight.	

SCIENCE STANDARD FIVE

Earth's Dynamic Systems

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Components of Earth

Earth's materials include rocks, soil, water, and air. Differences exist in all these materials and these differences can be used to sort and classify them.

the surface of Earth is surrounded by the atmosphere, a thin layer of air that supports life and has physical properties that are measurable and predictable.

water exists in different states (solid, liquid, gas) and in different forms such as rain, snow, hail, and vapor. Water is stored in reservoirs, lakes, oceans, ponds, bays, and ice and is a valuable natural resource essential to all living things.

Interactions Among Earth's Systems

the surface of the Earth changes constantly. Some of these changes happen slowly and are difficult to detect on a daily basis. Other changes happen quickly and result from events such as heavy rain storms, ice storms, hurricanes, and tornadoes.

repeating patterns can be found in weather and seasonal changes. Plant, animal, and human activities are influenced by these patterns.

Technology and Applications

technology enables meteorologists to predict changing weather patterns. Weather forecasts influence decisions concerning human activity.

By the completion of **grade 5**, students will know that:

Components of Earth

rocks are natural combinations of one or more minerals and are formed under a variety of conditions. Rocks, minerals, and soils are classified according to their physical properties.

soil is composed of rock material broken down by weathering and erosion and organic material that is decomposed. A soil's composition varies from place to place and helps determine which plants grown in a particular area.

water exists in the air as water vapor (e.g., clouds and fog) and is found on the surface as a liquid or solid, and below the surface as ground water. Water moves throughout Earth's systems by changing phase as a result of condensation and evaporation.

Interactions Among Earth's Systems

geologic features of Earth's surface such as mountains, plateaus, plains, lakes, streams, oceans, and glaciers are constantly changing, making the surface of the land different from location to location.

Technology and Applications

many of Earth's resources are limited or non-renewable. Careful planning and use are necessary to extend their availability.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Earth's Dynamic Systems

Kindergarten

Topic: Using the Senses to Observe Living and Non-Living Things

Students will be able to:

K.301 observe and describe the properties of a variety of living and non-living things using the 5 senses.

K.303 use the physical properties of living and non-living things (e.g., prickliness, slickness, stretchiness, and squishiness) to describe their similarities and differences.

K.304 sort, group, and regroup a variety of familiar living and non-living things based on their physical properties (e.g., shape, color, texture, taste, size, etc.)

K.305 identify the hand lens (magnifier) as an appropriate instrument for observing and discussing living and non-living things in greater detail.

Grade One

Topic: Requirements for Living Things to Survive in Their Habitats

Students will be able to:

1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or systems.

1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things.

Topic: Weather Patterns and Their Influence on Living Things

Students will be able to:

1.301 keep daily records of temperature and weather conditions and use these records to identify patterns over short and long periods of time.

Grade Two

Topic: Explaining How the Properties of Soils Affect Living Things

Students will be able to:

2.308 conduct simple tests to identify the three basic components of soil and to compare and contrast the unique properties of each of the components.

2.309 select and use appropriate instruments (e.g., hand lens/magnifier, droppers, funnels, filter paper, sieves) to analyze soil samples.

2.310 interpret test results and draw conclusions about soil composition.

2.311 record and organize the results of soil tests and explain these results through writing, drawing, and discussion.

2.312 reflect on the test results and predict how plants will grow in different soils.

Grade Three

Topic: Earth: A Rock Planet

Students will be able to:

3.305 observe a variety of Earth's materials such as rocks, sand, and soil and sort the materials into groups based on similar physical properties.

3.306 examine an assortment of rocks and use appropriate measuring tools (balances, meter tapes, syringes) to gather data about the rocks' physical properties (length, circumference, weight).

3.307 examine rocks in order to identify their composition and to recognize that they are made up of more than one component.

3.308 recognize that rocks are composed of Earth materials called minerals that cannot be physically broken apart any further.

Grade Four

Topic: Examining the Rate at which Forces Change Earth

Students will be able to:

4.307 analyze materials that make up land and describe these on the basis of their properties.

4.308 sort and classify samples of Earth materials according to physical properties such as color, luster, weight relative to size, particle size, and hardness.

4.309 recognize that wearing away and moving soil and rock is erosion; the settling of eroded materials is deposition.

Grade Five

Topic: Interactions Between Living Things and Their Environment

Students will be able to:

5.317 identify changes to a particular ecosystem as resulting from either natural or human-made events and explain whether the changes are beneficial or harmful.

5.318 conduct simple investigations to determine the effects different conditions, factors, or pollutants (e.g., pH of water, road salt, fertilizer run off) could possibly have on an ecosystem.

SCIENCE STANDARD FIVE

Earth's Dynamic Systems

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Components of Earth

Earth's materials include rocks, soil, water, and air. Differences exist in all these materials and these differences can be used to sort and classify them.

the surface of Earth is surrounded by the atmosphere, a thin layer of air that supports life and has physical properties that are measurable and predictable.

water exists in different states (solid, liquid, gas) and in different forms such as rain, snow, hail, and vapor. Water is stored in reservoirs, lakes, oceans, ponds, bays, and ice and is a valuable natural resource essential to all living things.

Interactions Among Earth's Systems

the surface of the Earth changes constantly. Some of these changes happen slowly and are difficult to detect on a daily basis. Other changes happen quickly and result from events such as heavy rain storms, ice storms, hurricanes, and tornadoes.

repeating patterns can be found in weather and seasonal changes. Plant, animal, and human activities are influenced by these patterns.

Technology and Applications

technology enables meteorologists to predict changing weather patterns. Weather forecasts influence decisions concerning human activity.

By the completion of **grade 5**, students will know that:

Components of Earth

rocks are natural combinations of one or more minerals and are formed under a variety of conditions. Rocks, minerals, and soils are classified according to their physical properties.

soil is composed of rock material broken down by weathering and erosion and organic material that is decomposed. A soil's composition varies from place to place and helps determine which plants grown in a particular area.

water exists in the air as water vapor (e.g., clouds and fog) and is found on the surface as a liquid or solid, and below the surface as ground water. Water moves throughout Earth's systems by changing phase as a result of condensation and evaporation.

Interactions Among Earth's Systems

geologic features of Earth's surface such as mountains, plateaus, plains, lakes, streams, oceans, and glaciers are constantly changing, making the surface of the land different from location to location.

Technology and Applications

many of Earth's resources are limited or non-renewable. Careful planning and use are necessary to extend their availability.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Earth's Dynamic Systems

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things	**Topic: Weather Patterns and Their Influence on Living Things**	**Topic: Explaining How the Properties of Soils Affect Living Things**	**Topic: Earth: A Rock Planet**	**Topic: Examining the Rate at which Forces Change Earth**	
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	
K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight. K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things.	1.302 organize weather data on graphs and on long-term data collection charts. 1.303 interpret and summarize long-term weather data. 1.305 select and use appropriate instruments such as wind scales (e.g., flags, pinwheels), thermometers and rain gauges to measure different features of weather. 1.306 describe different weather conditions (e.g., sunny, foggy, rains, and seasonal patterns) and identify the impact these conditions have on plant, animal, and human activity. 1.307 recognize that meteorologists are scientists who study, observe, and record information about the weather and who use this information to forecast the weather.	2.313 explain how composting is an effective method to recycle plants and other discarded organic matter.	3.309 sort and group an assortment of minerals based on similarities and differences in their physical properties. 3.310 order or serrate a group of minerals based on such physical properties as hardness, color, and luster. 3.311 conduct simple tests (scratch test, fizz test) to identify rocks' mineral composition and record and discuss the test results. 3.312 recognize that fossils or fossil imprints contained in rocks provide evidence of living organisms that have inhabited the Earth.	4.310 use stream tables (e.g., inclined tray) to model natural processes and to compare the changes in land created by water flowing over and through soil. 4.311 use stream tables (e.g., inclined tray) to model natural processes and to determine the effects of slope, flow, and land formation caused by erosion and deposition. 4.312 select and use a variety of appropriate instruments for collecting, recording, and analyzing data obtained from stream table investigations. 4.313 communicate the results of stream table investigations through record sheets, oral and written observations, and drawings.	

SCIENCE STANDARD FIVE

Earth's Dynamic Systems

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Components of Earth

Earth's materials include rocks, soil, water, and air. Differences exist in all these materials and these differences can be used to sort and classify them.

the surface of Earth is surrounded by the atmosphere, a thin layer of air that supports life and has physical properties that are measurable and predictable.

water exists in different states (solid, liquid, gas) and in different forms such as rain, snow, hail, and vapor. Water is stored in reservoirs, lakes, oceans, ponds, bays, and ice and is a valuable natural resource essential to all living things.

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PERFORMANCE INDICATORS

Earth's Dynamic Systems

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Examining the Rate at which Forces Change Earth **Students will be able to:** 4.314 conduct simple investigations to determine how different types of soil (sand, clay, humus) affect plant growth and develop and use the results of the investigation to support an individual's choice to fertilize, irrigate a parcel of land, etc. 4.315 select a current or past issue that has been discussed in the media such as the building of Delaware Route 1, damming of various rivers, replenishing coastal beaches, expanding urban development to determine how human activity affects the interaction between land and water. 4.316 recognize the role that plants play in curbing erosion and run off and determine the degree to and manner in which Delawareans are working to preserve the natural areas such as wetlands, forests, and sand dunes.	

SCIENCE STANDARD SIX

Life Processes

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Characteristics of Living Things

plants and animals are alive and have characteristics that make them different from each other and non-living things.

Requirements for Survival

plants and animals need food, water, air, light, and a suitable environment for survival.

Regulation and Behavior

the human body has parts that perform many different functions such as legs for walking, eyes for seeing, a mouth for talking and eating, and hands for holding. The human brain sends messages to all body parts so that they work properly and work together.

Health and Technology Application

a well-balanced diet, adequate rest, exercise, and good hygiene are essential for people to stay healthy.

By the completion of **grade 5**, students will know that:

Structure/Function Relationship

living things have structures that function to help them reproduce, grow, and survive in different kinds of places.

Flow of Matter and Energy

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy their energy needs. When plants and animals die, they are eaten by decomposers.

Regulation and Behavior

living organisms are composed of parts that work together to ensure the survival of the whole organism. The behavior of an organism is influenced by internal clues such as hunger and external clues such as air temperature.

Health and Technology Application

technological advances in medicine, the development of various safety devices and protective equipment, and improvements in hygiene have helped in the diagnosis and treatment of illness and have reduced the number of damaging and life-threatening injuries.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Life Processes

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things	**Topic: Requirements for Living Things to Survive in Their Habitats**	**Topic: Healthy Growth and Development of Humans**	**Topic: Human Body: How Form Relates to Function**	**Topic: Examining the Rate at which Forces Change Earth**	**Topic: Interactions Between Living Things and Their Environment**
Students will be able to:	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**	**Students will be able to:**
K.301 observe and describe the properties of a variety of living and non-living things using the 5 senses.	1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or systems.	2.301 use simple devices such as watches, thermometers, stethoscopes, scales, and measuring tapes to collect, record, and graph personal health data and to discuss individual, group, or class trends or patterns.	3.313 identify different parts of the body (eyes, bones, muscles, heart, etc.) and explain what function the specific body parts perform.	4.314 conduct simple investigations to determine how different types of soil (sand, clay, humus) affect plant growth and develop and use the results of the investigation to support an individual's choice to fertilize, irrigate a parcel of land, etc.	5.315 observe a variety of living organisms within natural or simulated ecosystems and identify structures, features, and behaviors of the organisms that enable them to survive in their ecosystems.
K.302 identify the 5 sense organs and explain which sense is associated with which organs.	1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things.	2.302 examine a variety of food items, including ones targeted especially for young students, and sort items based on their benefits for growing and staying healthy.	3.314 select several body parts and explain how the parts work together to perform different body functions (eating, walking).	**Topic: Relating Structures of Living Things to Their Function**	5.316 identify those factors that affect the growth and reproduction of organisms in an ecosystem such as light, water, temperature, and soil.
K.303 use the physical properties of living and non-living things (e.g., prickliness, slickness, stretchiness, and squishiness) to describe their similarities and differences.	1.310 observe a variety of living organisms (plants and animals) and identify basic needs common to the organisms such as food, water, air, shelter, etc.	2.303 identify technologies (e.g., refrigerator, cooler, vacuum packaging, plastic wrap) which are used to keep foods fresh and explain why spoiled foods are dangerous to the health and well being of humans.	3.315 recognize that the human brain sends messages to all body parts so that they work properly and work together.	**Students will be able to:**	5.317 identify changes to a particular ecosystem as resulting from either natural or human-made events and explain whether the changes are beneficial or harmful.
K.304 sort, group, and regroup a variety of familiar living and non-living things based on their physical properties (e.g., shape, color, texture, taste, size, etc.)			3.316 conduct simple investigations to determine and explain how different body parts respond to different kinds of visual, auditory, and tactile stimuli.	4.317 observe and describe structures in living organisms (plants and animals) that enable them to reproduce, grow, and survive in their environment.	
			3.317 explain how health is influenced by the proper functioning of different body parts.		

SCIENCE STANDARD SIX

Life Processes

END OF CLUSTER EXPECTATIONS

By the completion of grade 3, students will know that:

Characteristics of Living Things

plants and animals are alive and have characteristics that make them different from each other and non-living things.

Requirements for Survival

plants and animals need food, water, air, light, and a suitable environment for survival.

Regulation and Behavior

the human body has parts that perform many different functions such as legs for walking, eyes for seeing, a mouth for talking and eating, and hands for holding. The human brain sends messages to all body parts so that they work properly and work together.

Health and Technology Application

a well-balanced diet, adequate rest, exercise, and good hygiene are essential for people to stay healthy.

By the completion of grade 5, students will know that:

Structure/Function Relationship

living things have structures that function to help them reproduce, grow, and survive in different kinds of places.

Flow of Matter and Energy

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy their energy needs. When plants and animals die, they are eaten by decomposers.

Regulation and Behavior

living organisms are composed of parts that work together to ensure the survival of the whole organism. The behavior of an organism is influenced by internal clues such as hunger and external clues such as air temperature.

Health and Technology Application

technological advances in medicine, the development of various safety devices and protective equipment, and improvements in hygiene have helped in the diagnosis and treatment of illness and have reduced the number of damaging and life-threatening injuries.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Life Processes

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things	**Topic: Requirements for Living Things to Survive in Their Habitats**	**Topic: Healthy Growth and Development of Humans**		**TTopic: Relating Structures of Living Things to Their Function**	**Topic: The Human Body and Healthy Living**
Students will be able to:	**Students will be able to:**	**Students will be able to:**		**Students will be able to:**	**Students will be able to:**
K.305 identify the hand lens (magnifier) as an appropriate instrument for observing and discussing living and non-living things in greater detail. K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight. K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things K.310 use non-standard, units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things.	1.312 recognize that organisms grow, change and die over time and record and communicate various changes observed in living things through writings, drawings, and discussions. 1.313 select the hand lens as an appropriate instrument for observing greater detail of organisms. 1.314 sort and group plants and animals based on their physical properties or behavioral characteristics.	2.304 explain how childhood injuries and illnesses can be prevented or avoided, by reducing threatening situations such as coughing or sneezing on others, not wearing a helmet when cycling, attending school with a fever, and swimming unattended. 2.306 identify various ways to exercise (running, raking leaves, walking the dog, biking) and discuss the benefits of regular exercise for maintaining a healthy body. 2.307 discuss precautions that should be taken to minimize the risk of spreading or contracting an illness (coughing or sneezing on others, drinking from someone's glass, attending school with a fever).		4.318 develop simple classification systems (properties of germination, territorial behavior) based on similarities and differences in the structures or behavior of living organisms. 4.319 observe, compare, and record variations within a species (e.g., crayfish, grass hoppers, bean plants, tree seedlings) and predict how the variations may affect the ability of the organism to survive. 4.321 select a living organism and develop descriptions of how the organism responds to a variety of stimuli, based on multiple observations and data collection.	5.328 describe how the interaction of body systems contributes to healthy growth and development. 5.329 explain the effect one organ can have on another organ and how each organ contributes to the well being of a person. 5.330 investigate and describe how a variety of external stimuli (e.g., temperature, bright light, smells) trigger different body responses. 5.331 explain how life style and heredity as well as pathogens are related to the cause or prevention of disease and other health problems. 5.332 set a personal health goal and track progress toward its achievement.

SCIENCE STANDARD SIX

Life Processes

END OF CLUSTER EXPECTATIONS

By the completion of grade 3, students will know that:

Characteristics of Living Things

plants and animals are alive and have characteristics that make them different from each other and non-living things.

Requirements for Survival

plants and animals need food, water, air, light, and a suitable environment for survival.

Regulation and Behavior

the human body has parts that perform many different functions such as legs for walking, eyes for seeing, a mouth for talking and eating, and hands for holding. The human brain sends messages to all body parts so that they work properly and work together.

Health and Technology Application

a well-balanced diet, adequate rest, exercise, and good hygiene are essential for people to stay healthy.

By the completion of grade 5, students will know that:

Structure/Function Relationship

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Flow of Matter and Energy

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Regulation and Behavior

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Health and Technology Application

technological advances in medicine, the development of various safety devices and protective equipment, and improvements in hygiene have helped in the diagnosis and treatment of illness and have reduced the number of damaging and life-threatening injuries.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS
Life Processes

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
		Topic: Explaining How the Properties of Soils Affect Living Things **Students will be able to:** 2.312 reflect on the test results and predict how plants will grow in different soils. **Topic: Life Cycles of Living Things** **Students will be able to:** 2.315 maintain a record of an organism's growth and change over time and identify both the basic and specific survival needs of this organism. 2.316 identify and describe specific features of an organism that help it survive in its environment. 2.317 observe parents and offspring from a selected species of organism and identify characteristics that offspring have in common with their parents and characteristics which are different from their parents.		**Topic: Relating Structures of Living Things to Their Function** **Students will be able to:** 4.323 develop reasonable, testable scientific questions about the life cycle of organisms (e.g., the effect of variations within species, how the structure of an organism relates to the function it performs, etc.) and plan and conduct a simple investigation to answer the questions.	**Topic: The Human Body and Healthy Living** **Students will be able to:** 5.333 analyze and describe how science and technology have contributed to healthy living. 5.334 identify local community agencies that advocate for healthy individuals, families, and communities.

SCIENCE STANDARD SIX

Life Processes

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Characteristics of Living Things

plants and animals are alive and have characteristics that make them different from each other and non-living things

Requirements for Survival

plants and animals need food, water, air, light, and a suitable environment for survival

Regulation and Behavior

the human body has parts that perform many different functions such as legs for walking, eyes for seeing, a mouth for talking and eating, and hands for holding. The human brain sends messages to all body parts so that they work properly and work together

Health and Technology Application

a well-balanced diet, adequate rest, exercise, and good hygiene are essential for people to stay healthy

By the completion of **grade 5**, students will know that:

Structure/Function Relationship

living things have structures that function to help them reproduce, grow, and survive in different kinds of places

Flow of Matter and Energy

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy their energy needs. When plants and animals die, they are eaten by decomposers.

Regulation and Behavior

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Health and Technology Application

technological advances in medicine, the development of various safety devices and protective equipment, and improvements in hygiene have helped in the diagnosis and treatment of illness and have reduced the number of damaging and life-threatening injuries

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS
Life Processes

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
		Topic: Life Cycles of Living Things **Students will be able to:** 2.318 identify evidence of changes in growth and development of an organism such as shedding of skin, increase in body size, increase in excrement, decrease in the amount of food eaten. 2.319 observe growth and change in the life cycle of an organism and relate this to change and growth in their (students) own bodies.			

SCIENCE STANDARD SEVEN

Diversity and Continuity of Living Things

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Heredity and Reproduction

the offspring of plants and animals resemble their parents in many ways although they are not exactly like their parents or each other.

the offspring of some plants and animals look very different from their parents when they are first born. Similarities between parents and their offspring become more apparent as the offspring develops.

the phases in the life cycle of plants and animals (i.e., birth, growth, reproduction, and death) are predictable and describable but differ from species to species.

Diversity

many different kinds of plants and animals live throughout the world and can be classified or sorted into groups based upon appearance and behavior.

Evolution

plants and animals have features that help them survive and reproduce in different places.

fossils provide evidence that present day plants and animals are both similar to and different from those that lived in the past. These fossil records indicate that some plants and animals that once lived on Earth no longer exist.

Biotechnology and Its Application

humans have always applied their knowledge of the varied characteristics of plants and animals to satisfy their needs for food, shelter, and clothing.

By the completion of **grade 5**, students will know that:

Heredity and Reproduction

physical characteristics are passed on from parent to offspring. Organisms with two parents inherit characteristics of both.

Diversity

organisms have many distinct and unique features which they use for survival. Specialized features include those for finding food, building shelters, evading predators, and reproducing. Scientists use similarities and differences in these features to classify and group organisms.

Evolution

organisms of the same species have variations which may provide an advantage in reproduction and survival.

Biotechnology and Its Application

the climate and soils in Delaware are ideal for growing a great variety of fruits and vegetables. Delaware scientists continue to explore ways to improve the growing conditions and quality of these crops.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Diversity and Continuity of Living Things

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things **Students will be able to:** K.301 observe and describe the properties of a variety of living and non-living things using the 5 senses. K.303 use the physical properties of living and non-living things (e.g., prickliness, slickness, stretchiness, and squishiness) to describe their similarities and differences. K.304 sort, group, and regroup a variety of familiar living and non-living things based on their physical properties (e.g., shape, color, texture, taste, size, etc.) K.305 identify the hand lens (magnifier) as an appropriate instrument for observing and discussing living and non-living things in greater detail.	**Topic: Requirements for Living Things to Survive in Their Habitats** **Students will be able to:** 1.312 recognize that organisms grow, change, and die over time and record and communicate various changes observed in living things through writings, drawings, and discussions.	**Topic: Life Cycles of Living Things** **Students will be able to:** 2.314 observe the life cycle of a selected organism (e.g., plant, butterfly, frog, etc.) and recognize that the phases of the life cycle are predictable and describable. 2.315 maintain a record of an organism's growth and change over time and identify both the basic and specific survival needs of this organism. 2.316 identify and describe specific features of an organism that help it survive in its environment.		**Topic: Relating Structures of Living Things to Their Function** **Students will be able to:** 4.317 observe and describe structures in living organisms (plants and animals) that enable them to reproduce, grow, and survive in their environment. 4.318 develop simple classification systems (properties of germination, territorial behavior) based on similarities and differences in the structures or behavior of living organisms.	**Topic: Interactions Between Living Things and Their Environment** **Students will be able to:** 5.315 observe a variety of living organisms within natural or simulated ecosystems and identify structures, features, and behaviors of the organisms that enable them to survive in their ecosystem. 5.316 identify those factors that affect the growth and reproduction of organisms in an ecosystem such as light, water, temperature, and soil. **Topic: The Human Body and Healthy Living** **Students will be able to:** 5.331 explain how life style and heredity as well as pathogens are related to the cause or prevention of disease and other health problems.

SCIENCE STANDARD SEVEN

Diversity and Continuity of Living Things

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Heredity and Reproduction

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Diversity

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Evolution

plants and animals have features that help them survive and reproduce in different places.

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Biotechnology and Its Application

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By the completion of **grade 5**, students will know that:

Heredity and Reproduction

physical characteristics are passed on from parent to offspring. Organisms with two parents inherit characteristics of both.

Diversity

organisms have many distinct and unique features which they use for survival. Specialized features include those for finding food, building shelters, evading predators, and reproducing. Scientists use similarities and differences in these features to classify and group organisms.

Evolution

organisms of the same species have variations which may provide an advantage in reproduction and survival.

Biotechnology and Its Application

the climate and soils in Delaware are ideal for growing a great variety of fruits and vegetables. Delaware scientists continue to explore ways to improve the growing conditions and quality of these crops.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

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PERFORMANCE INDICATORS

Diversity and Continuity of Living Things

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things		**Topic: Life Cycles of Living Things**		**Topic: Relating Structures of Living Things to Their Function**	
Students will be able to:		**Students will be able to:**		**Students will be able to:**	
K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight.		2.317 observe parents and offspring from a selected species of organism and identify characteristics that offspring have in common with their parents and characteristics which are different from their parents.		4.319 observe, compare, and record variations within a species (e.g., crayfish, grass hoppers, bean plants, tree seedlings) and predict how the variations may affect the ability of the organism to survive.	
K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things.		2.318 identify evidence of changes in growth and development of an organism such as shedding of skin, increase in body size, increase in excrement, decrease in the amount of food eaten.		4.320 differentiate between an organism's habitat (where an animal lives) and its territory (an area claimed by its own space).	
K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things.		2.319 observe growth and change in the life cycle of an organism and relate this to change and growth in their (students) own bodies		4.321 select a living organism and develop descriptions of how the organism responds to a variety of stimuli based on multiple observations and data collection.	

SCIENCE STANDARD SEVEN

Diversity and Continuity of Living Things

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Heredity and Reproduction

the offspring of plants and animals resemble their parents in many ways although they are not exactly like their parents or each other

the offspring of some plants and animals look very different from their parents when they are first born. Similarities between parents and their offspring become more apparent as the offspring develops.

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Diversity

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Evolution

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Biotechnology and Its Application

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By the completion of **grade 5**, students will know that:

Heredity and Reproduction

physical characteristics are passed on from parent to offspring. Organisms with two parents inherit characteristics of both.

Diversity

organisms have many distinct and unique features which they use for survival. Specialized features include those for finding food, building shelters, evading predators, and reproducing. Scientists use similarities and differences in these features to classify and group organisms.

Evolution

organisms of the same species have variations which may provide an advantage in reproduction and survival.

Biotechnology and Its Application

the climate and soils in Delaware are ideal for growing a great variety of fruits and vegetables. Delaware scientists continue to explore ways to improve the growing conditions and quality of these crops.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Diversity and Continuity of Living Things

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.322 maintain journals to record systematically the growth and development of a selected organism and compare and discuss journal entries with classmates. 4.323 develop reasonable, testable scientific questions about the life cycle of organisms (e.g., the effect of variations within species, how the structure of an organism relates to the function it performs, etc.) and plan and conduct a simple investigation to answer the questions.	

SCIENCE STANDARD EIGHT

Ecology

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

Interactions Within the World Around Us

the Earth consists of living and non-living things. All living things interact with each other and the non-living parts of their surroundings – air, water, soil, and Sun.

living things depend on each other in many ways. Animals use plants for shelter, and eat plants and other animals for food. Plants depend on animals to carry their pollen and to disperse their seeds.

people depend on living and non-living resources to satisfy the need for food, clothing, shelter, and fuel. Care must be exercised in the use of these resources since, in many cases, their supply is limited.

Changes in Environments

living things change the area in which they live

Technology and Its Influence on the Environment

technology continues to be developed which allows many different kinds of materials to be reduced, recycled, and reused. Recycling and reuse extend the life of materials and reduce the amount of discarded products in land fills.

modern technology enables farmers to increase crop production. Technology also allows food to be stored for long periods and transported long distances without spoiling

By the completion of **grade 5**, students will know that:

Interactions Within the World Around Us

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy energy needs. Dead plants and animals are eaten by decomposers.

Changes in Environments

organisms adapt in order to live and reproduce in certain environments. Those organisms that are best suited for a particular environment have adaptations that allow them to compete for available resources and cope with the physical conditions of their immediate surroundings.

changes in an organism's environment can be either beneficial or harmful. Organisms may be affected by other organisms, by various physical factors (e.g., rainfall, temperature), by physical forces (e.g., storms, earthquakes), and by daily, seasonal, and annual cycles.

pollution and human activities can change the environment and adversely affect the health and survival of humans and other species. Careful planning and safe practices are required in waste disposal, recycling and waste management, pest control, and use of resources to ensure the well being of humans and the environment.

Technology and Its Influence on the Environment

various technologies are used to access resources or create conveniences needed by society. In many cases, there are significant environmental impacts and resource limitations that need to be considered. Such activities include logging, building of highways, shopping centers, and dams; introduction of one species to control another species; spraying of insects, as well as some aspects of farming.

The areas listed above will serve as the basis for Science assessment items in the Delaware Student Testing Program.

PERFORMANCE INDICATORS

Ecology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things **Students will be able to:** K.301 observe and describe the properties of a variety of living and non-living things using the 5 senses. K.303 use the physical properties of living and non-living things (e.g., prickliness, slickness, stretchiness, and squishiness) to describe their similarities and differences. K.304 sort, group, and regroup a variety of familiar living and non-living things based on their physical properties (e.g., shape, color, texture, taste, size, etc.) K.305 identify the hand lens (magnifier) as an appropriate instrument for observing and discussing living and non-living things in greater detail.	**Topic: Requirements for Living Things to Survive in Their Habitats** **Students will be able to:** 1.308 conduct short-term and long-term investigations on selected outdoor plots or natural systems such as aquariums or terrariums and identify the living and non-living components of the plot or systems. 1.309 identify the number of different kinds of living things in an outdoor plot or natural system and compare the similarities and differences in these living things. 1.310 observe a variety of living organisms (plants and animals) and identify basic needs common to the organisms such as food, water, air, shelter, etc. 1.311 recognize that in addition to common basic needs, organisms also have specific needs such as type of water, range of temperature, type of food.	**Topic: Explaining How the Properties of Soils Affect Living Things** **Students will be able to:** 2.312 reflect on the test results and predict how plants will grow in different soils. 2.313 explain how composting is an effective method to recycle plants and other discarded organic matter. **Topic: Life Cycles of Living Things** **Students will be able to:** 2.315 maintain a record of an organism's growth and change over time and identify both the basic and specific survival needs of this organism. 2.316 identify and describe specific features of an organism that help it survive in its environment.		**Topic: Examining the Rate at which Forces Change Earth** **Students will be able to:** 4.314 conduct simple investigations to determine how different types of soil (sand, clay, humus) affect plant growth and develop and use the results of the investigation to support an individual's choice to fertilize, irrigate a parcel of land, etc. 4.315 select a current or past issue that has been discussed in the media such as the building of Delaware Route 1, damming of various rivers, replenishing coastal beaches, expanding urban development to determine how human activity affects the interaction between land and water.	**Topic: Interactions Between Living Things and Their Environment** **Students will be able to:** 5.310 recognize that models that simulate an ecosystem can be used to learn about the complex relationships that exist within ecosystems throughout the world. 5.311 use pictorial models to explain relationships within an ecosystem such as food chains or simple food webs. 5.312 use appropriate equipment such as hand lens, pH paper, and measuring devices to conduct, record, and organize long-term daily observations of a natural or simulated ecosystem. 5.313 trace the flow of matter and energy through an ecosystem by constructing simple diagrams (food chains or a web of food chains) that include the Sun, producers, consumers, and decomposers.

SCIENCE STANDARD EIGHT

Ecology

END OF CLUSTER EXPECTATIONS

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By the completion of **grade 3**, students will know that:

Interactions Within the World Around Us

the Earth consists of living and non-living things. All living things interact with each other and the non-living parts of their surroundings – air, water, soil, and Sun.

living things depend on each other in many ways. Animals use plants for shelter, and eat plants and other animals for food. Plants depend on animals to carry their pollen and to disperse their seeds.

people depend on living and non-living resources to satisfy the need for food, clothing, shelter, and fuel. Care must be exercised in the use of these resources since, in many cases, their supply is limited.

Changes in Environments

living things change the area in which they live

Technology and Its Influence on the Environment

technology continues to be developed which allows many different kinds of materials to be reduced, recycled, and reused. Recycling and reuse extend the life of materials and reduce the amount of discarded products in land fills.

modern technology enables farmers to increase crop production. Technology also allows food to be stored for long periods and transported long distances without spoiling.

By the completion of **grade 5**, students will know that:

Interactions Within the World Around Us

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy energy needs. Dead plants and animals are eaten by decomposers.

Changes in Environments

organisms adapt in order to live and reproduce in certain environments. Those organisms that are best suited for a particular environment have adaptations that allow them to compete for available resources and cope with the physical conditions of their immediate surroundings.

changes in an organism's environment can be either beneficial or harmful. Organisms may be affected by other organisms, by various physical factors (e.g., rainfall, temperature), by physical forces (e.g., storms, earthquakes), and by daily, seasonal, and annual cycles.

pollution and human activities can change the environment and adversely affect the health and survival of humans and other species. Careful planning and safe practices are required in waste disposal, recycling and waste management, pest control, and use of resources to ensure the well being of humans and the environment.

Technology and Its Influence on the Environment

various technologies are used to access resources or create conveniences needed by society. In many cases, there are significant environmental impacts and resource limitations that need to be considered. Such activities include logging, building of highways, shopping centers, and dams; introduction of one species to control another species; spraying of insects; as well as some aspects of farming.

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PERFORMANCE INDICATORS

Ecology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
Topic: Using the Senses to Observe Living and Non-Living Things **Students will be able to:** K.306 use a hand lens (magnifier) to inspect a variety of living and non-living things and demonstrate through discussion or drawings how the lens extends the sense of sight. K.307 demonstrate, through a variety of ways (e.g., matching the picture to the word, applying thematic vocabulary), development of appropriate vocabulary used to describe living and non-living things. K.310 use non-standard units of measure (e.g., string around trees, paper clips to measure length of leaves) to compare the size and weight of living and non-living things.	**Topic: Requirements for Living Things to Survive in Their Habitats** **Students will be able to:** 1.314 sort and group plants and animals based on their physical properties or behavioral characteristics. **Topic: Weather Patterns and Their Influence on Living Things** **Students will be able to:** 1.306 describe different weather conditions (e.g., sunny, foggy, rains, and seasonal patterns) and identify the impact these conditions have on plant, animal, and human activity.			**Topic: Examining the Rate at which Forces Change Earth** **Students will be able to:** 4.316 recognize the role that plants play in curbing erosion and run off and determine the degree to and manner in which Delawareans are working to preserve natural areas such as wetlands, forest, sand dunes. **Topic: Using Electricity in Everyday Life** **Students will be able to:** 4.329 describe how, when, and where electricity is generated for the local community and the sources of raw materials used to produce the community's electricity.	**Topic: Interactions Between Living Things and Their Environment** **Students will be able to:** 5.314 categorize the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers. 5.315 observe a variety of living organisms within natural or simulated ecosystems and identify structures, features, and behaviors of the organisms that enable them to survive in their ecosystems. 5.316 identify those factors that affect the growth and reproduction of organisms in an ecosystem, such as light, water, temperature, and soil. 5.317 identify changes to a particular ecosystem as resulting from either natural or human-made events and explain whether the changes are beneficial or harmful.

SCIENCE STANDARD EIGHT

Ecology

END OF CLUSTER EXPECTATIONS

By the completion of **grade 3**, students will know that:

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the Earth consists of living and non-living things. All living things interact with each other and the non-living parts of their surroundings – air, water, soil, and Sun.

living things depend on each other in many ways. Animals use plants for shelter, and eat plants and other animals for food. Plants depend on animals to carry their pollen and to disperse their seeds.

people depend on living and non-living resources to satisfy the need for food, clothing, shelter, and fuel. Care must be exercised in the use of these resources since, in many cases, their supply is limited.

Changes in Environments

living things change the area in which they live.

Technology and Its Influence on the Environment

technology continues to be developed which allows many different kinds of materials to be reduced, recycled, and reused. Recycling and reuse extend the life of materials and reduce the amount of discarded products in land fills.

modern technology enables farmers to increase crop production. Technology also allows food to be stored for long periods and transported long distances without spoiling.

By the completion of **grade 5**, students will know that:

Interactions Within the World Around Us

all living organisms interact with the living and non-living parts of their surroundings to meet their needs for survival. These interactions lead to a constant exchange of matter and energy. Plants derive energy from the Sun for growth and survival. Animals eat plants or other animals that have also eaten plants to satisfy energy needs. Dead plants and animals are eaten by decomposers.

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PERFORMANCE INDICATORS

Ecology

Kindergarten	Grade One	Grade Two	Grade Three	Grade Four	Grade Five
				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.317 observe and describe structures in living organisms (plants and animals) that enable them to reproduce, grow, and survive in their environment. 4.318 develop simple classification systems (properties of germination, territorial behavior) based on similarities and differences in the structures or behavior of living organisms.	Topic: Interactions Between Living Things and Their Environment **Students will be able to:** 5.318 conduct simple investigations to determine the effects different conditions, factors, or pollutants (e.g. pH of water, road salt, fertilizer run off) could possibly have on an ecosystem. 5.320 use evidence obtained from experiments to inform those ecosystem decisions that may be expressed in writings, drawings, discussions, or presentations.

SCIENCE STANDARD EIGHT

Ecology

END OF CLUSTER EXPECTATIONS

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PERFORMANCE INDICATORS

Ecology

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				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.319 observe, compare, and record variations within a species (e.g., crayfish, grass hoppers, bean plants, tree seedlings) and predict how the variations may affect the ability of the organism to survive. 4.320 differentiate between an organism habitat (where an animal lives) and its territory (an area claimed by its own space). 4.321 select a living organism and develop descriptions of how the organism responds to a variety of stimuli based on multiple observations and data collection.	

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PERFORMANCE INDICATORS

Ecology

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				Topic: Relating Structures of Living Things to Their Function **Students will be able to:** 4.322 maintain journals to record systematically the growth and development of a selected organism and compare and discuss journal entries with classmates. 4.323 develop reasonable, testable scientific questions about the life cycle of organisms (e.g., the effect of variations within species, how the structure of an organism relates to the function it performs, etc.) and plan and conduct a simple investigation to answer the questions.	

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GLOSSARY OF TERMS

Science Performance Indicators Grades K–5

C

Circuit: **The path an electric current follows as it moves through wires and electrical devices.**

Conductors: **Materials that allow electricity to flow through them.**

E

Ecosystems: **A community of organisms and their non-living environments.**

Erosion: **Wearing away and moving particles with soil and rock.**

F

Fulcrum: **The support on or against which a lever rests.**

G

Germinate: **To begin to grow or sprout.**

H

Habitat: **The region where a species or individual is naturally found or lives.**

I

Insulators: **Materials through which electricity does not flow, at least not in detectable amounts.**

M

Mixtures: **Two or more substances mixed together that differ in properties.**

N

Non-standard units of measures: **Units used to measure such as paper clips, the edge of an index card, a hand-span, etc.**

P

Pathogens: **Disease-causing bacteria**

Pictograph: **A graph in which a symbol is used to represent a given number of items.**

S

Stream table: **A waterproof box that contains sand, gravel, and other soil components and that has a water source.**

T

Tactile stimuli: **A response to being touched.**